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REGIONAL PLANNING

PART XI

THE SOUTHEAST

1942

NATIONAL RESOURCES PLANNING BOARD

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REGIONAL PLANNING

PART XI—THE SOUTHEAST

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1942

NATIONAL RESOURCES PLANNING BOARD

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SOUTHEASTERN REGIONAL PLANNING COMMISSION

527 NEW POST OFFICE BUILDING

ATLANTA, GEORGIA

SEPTEMBER 15, 1942.

Honorable FREDERIC A. DELANO,

Chairman, National Resources Planning Board, Washington, D. C.

DEAR MR. DELANO:

As members of the Southeastern Regional Planning Commission, we have the honor to transmit herewith a report on a program of regional development for the Southeast. We do so upon the invitation of the National Resources Planning Board in accordance with your generous offer to assist the Commission during the early period of its existence and in its effort to establish itself securely as a force working for the long-range development of the region in the war and post-war periods.

Beginning in 1940, the Governors of the seven Southeastern States by the appointment of two members from each State, established the Southeastern Regional Planning Commission. Its central purpose is to supplement and inter-relate the activities of State and local planning agencies, which have grown in strength and numbers since the early 1930's, in seeking the fullest possible development, conservation, and use of our regional resources. The many common characteristics of climate, of social and economic life, and of history which these States share make interstate cooperation in regional planning possible and effective.

During the period of its organization, the Southeastern Regional Planning Commission appealed to the National Resources Planning Board for assistance. In response to that request, the Commission has been provided with headquarters in the Atlanta Field Office of the National Resources Planning Board, and has been able to call upon its staff for technical guidance and general secretarial service. Assistance of a similar nature has been solicited and obtained from a number of Federal, State, and local governmental agencies, and private organizations in the Southeast.

One of the first major tasks which the Commission set for itself was to formulate, in terms of the region as a whole, a sound and practical program around which to organize its subsequent activities. The present report is a description of that program. In developing its various sections and proposals, the Commission secured the services of a number of technical authorities on various phases of regional life and development, who have worked under the general direction of our Executive Secretary, William Davlin. Possessing a real understanding of the region's problems and a real sympathy with its aspirations, they were asked to present their views objectively and with consideration only for the best and broadest development of the region. The larger part of the report is made up of the technical memoranda which they submitted in response to the Commission's request. These, and the recommendations which accompany them, are released by the Commission for careful study and consideration on the part of business, agricultural, industrial, educational, and governmental leaders. It is not anticipated that there will be complete agreement on all of the details of so ambitious a program; many further studies, revisions, and refinements remain to be undertaken. That there will be general agreement on the major directions of future development and the means of working toward them seems clear.

The post-war period will bring many grave problems to the Southeast, but it will also provide great opportunities. It is toward the realization of these opportunities that the further activities of the Southeastern Regional Planning Commission are being directed. Our studies and conferences to date leave us firm in the belief that, as part of the larger South, the States of our region constitute the Nation's new frontier.

Respectfully yours,

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Forest Service, U. S. Department of Agriculture
Southern States Work-Conference on School Administrative Problems
United States Housing Authority
National Park Service, U. S. Department of Interior
Government Research Division, Department of Regional Studies, Tennessee Valley Authority
Federal Power Commission
Works Projects Administration of Georgia (O. P. No. 195–2–34–255)

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Appendix

SUMMARY OF MAJOR RECOMMENDATIONS

Agricultural Development

I. *High-Cost and High-Hazard Areas and Farms.*—A. Shifts in the production of certain cash crops are recommended, from high-cost and high-hazard areas and farms, to other areas and farms more adapted to the production of such crops. Steps involved are:

1. Chairmen of State Agricultural Planning Committees to appoint subcommittees to delineate those areas and farms found to be high-cost and high-hazard in respect to certain crops.

2. Standards by which high-cost and high-hazard areas and farms, and the causes of their high-cost and high-hazard status, may be determined.

3. Consideration by Congress of the acquisition by the Department of Agriculture of such areas and farms for conversion to their best potential use. Elements to be considered:

a. Establishment of a Federal holding corporation under the Department of Agriculture for financing such acquisition.

b. Establishment within the Department of Agriculture of a rural conservation works program for rehabilitating and improving the acquired high-cost and high-hazard areas and farms.

c. Rehabilitation of farm families found living on such lands, as far as practicable on acreages thereon found capable of reclamation.

d. Reimbursement by Federal Government of local taxing bodies sustaining losses of revenue through Federal acquisition of said lands.

II. *Application of National Farm Program to the Southeast.*—A. For the improved operation of Federal aid-to-agriculture programs in the Southeastern Region, the following general problems are posed:

1. An increasing recognition of need as a criterion for distributing Federal subsidies to agriculture.

2. The increase of prices for farm lands arising from benefit payments attached to the land.

3. The perpetuation of crops such as cotton on farms more adapted to other crops, due to the influence of past-crop history upon AAA payments.

4. Restatement and clarification of the primary objectives of agricultural adjustment.

III. *Conservation of Human Resources in Agriculture.*—A. For the purpose of modifying the national farm program to include human conservation as a major goal, the following are recommended:

1. Inclusion of milk and other essential food production, for home use, as a conservation practice.

2. Provision of an adequate Rural Housing Program; county provision of health units in farming areas.

3. Extension of the food-stamp and cotton-stamp programs to include all low-income families, irrespective of relief status.

4. Vocational industrial training for rural youth, with specific emphasis upon areas having a surplus of farm youth.

5. Establishment of a rural work program of construction of public works and facilities, for post-war employment.

IV. *Conservation of Physical Resources.*—A. For the purpose of alleviating certain items of economic waste, it is recommended:

1. That the county agricultural committees cooperate in developing land classifications for assessment purposes.

2. That enabling legislation be enacted for the zoning of rural lands.

3. That obviously submarginal areas be zoned against further agricultural development.

4. That public regulation of forest cuttings be established.

5. That a woodland base for each farm be included in conservation programs.

V. *Farm Labor.*—A. For the purpose of affording farm laborers and their families better opportunities to become more useful citizens and enjoy a higher standard of living, it is recommended:

1. That, with due recognition of the complexities which stem from the differing natures of agricultural and nonagricultural employment, serious consideration should be given to extending the principles of the Nation's social security program to agricultural workers; methods should also be devised to adjust farm prices and labor costs so as to make possible the extension of the principles of the Nation's wages and hours standards to farm laborers.

2. That County Agricultural Planning Committees establish farm labor subcommittees for the purpose of studying and planning action-programs relative to the farm labor situation.

VI. *Farm Tenancy.*—A. State and county land tenure subcommittees should be organized in areas

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where farm tenancy problems are acute; the activities of these subcommittees should be directed to the following major objectives:

1. Encouraging the development, within reasonable economic limits, of diversified and livestock farming.

2. Conservation of farm land and improvements through leases which will protect both the tenant's and owner's interests in improvements to farm land and property.

3. Making tenure more secure through improved leasing practices, provisions for arbitrating differences between owners and tenants, and public regulation of the buying and selling of farm land.

VII. *Land Reform.*—A. Since there is reason to question whether or not our land tenure system, not only in the Southeast but throughout the Nation, is fulfilling its proper function, it is recommended:

1. That critical examination be made of the existing system of land tenure to determine whether it is functioning in such a manner as to provide the maximum benefits and satisfaction consistent with its permanent maintenance.

VIII. *Marketing and Distribution of Agricultural Products.*—A. Agricultural agencies in the seven States should pool their resources in the organization of a Southeastern Marketing Research Council to sponsor and coordinate marketing studies looking toward the development of an adequate marketing program for the region.

B. The Marketing Research Council and other agencies and institutions equipped to do the research should investigate at an early date the following problems:

1. Integration of various agricultural activities and programs.
2. Loss of markets.
3. Surplus removal programs.
4. Extension of the use of advertising.
5. Possible savings through increased efficiency of the distribution system.
6. Agricultural marketing services and facilities.

Forestry Development

I. *What the Forest Owners Should Do.*—A. The first step, and an essential one, is to obtain and hold a complete control of the forest fire situation in order that the hard-earned fruits of long effort may not be nullified or subjected to unbearably high risks.

B. Forest landowners should aim to build up both the volume and the quality of the growing stock on their individual holdings through proper silvicultural practices.

C. To further their common interests, private owners should organize cooperative associations and pool their efforts to get better protection from fire and theft; to employ technical advice concerning forestry measures; to develop favorable marketing opportunities for their products; and to make more effective the influence of forest landowners in public appropriations, taxes, freight rates, and law enforcement.

II. *The Part of the Wood-Using Industries.*—A. Give moral and financial support to local, State, and national programs designed to increase protection from fire, trespass, and destructive forest practices.

B. Encourage in every way possible the practice of good cutting methods in harvesting timber and reduce waste of sound material in woods and mill and develop industrial uses for such low-grade material as is now left to rot in the woods or is burned at the plant.

III. *What the States Should Do to Assist.*—A. The States should extend organized fire protection under the Clarke-McNary law into every part of their forested sections.

B. The educational activities in forestry of such State Agencies as the Forest Services, Extension Services, Agricultural Experiment Stations, public schools, colleges and universities should be coordinated and greatly strengthened.

C. In each State the forest resource should be fully and wisely taken into account in the development of forward-looking industrial programs. The purpose should be to encourage the establishment and operation in each section of every State of as many wood-using plants, of right size and kind, as the forests are capable of sustaining on a stable basis.

D. Some forests should be owned and operated by the States, primarily as demonstrations of good forest management in each of the major forest types within their boundaries.

E. In every State there is a general lack of observance on the part of the general public of the property rights of forest owners. The laws regarding trespass are reasonably adequate in most States—the need is, first, to educate citizens to a keener regard of these rights, and, second, to greatly strengthen the enforcement of the law.

IV. *What the Federal Government Should Do to Assist.*—A. The Federal Government should greatly increase the share of the appropriations for cooperative fire protection under the Clarke-McNary Act so that sufficient funds may be available to meet the growing requirements of the situation.

B. The present national forest areas throughout the region should be extended by purchase or otherwise to include lands on which farming is submarginal and which should be permanently removed from tillage,

lands which should be kept in forest cover to prevent or control floods and soil erosion wherever such areas are not attractive to private or State ownership for long-time forest management, and lands which are in crucial industrial regions where large-scale public ownership of forest lands is necessary to guarantee the permanent flow of raw materials needed to sustain industrial communities.

C. The Federal Government should provide liberal appropriations under the authorization granted by the Fulmer Act for the establishment and administration of State forests.

D. In the agricultural aid and control program of the Government, timber growing should be recognized as an agricultural activity and given the same benefits, subsidies, concessions, and credit facilities as are other crops of the soil.

E. The research program of the Forest Service of the United States Department of Agriculture, the recognized agency for forest research, should be speeded up in all of the major forest types of the region. A new forest experiment station should be established at a convenient point in Georgia or Alabama to concentrate its efforts in the three States of Georgia, Alabama, and Florida.

F. The Forest Survey of the United States Forest Service should be extended as soon as possible to the State of Tennessee and a reinventory of the forests and an economic study of the forest industries of all of the States in the region should be made within 10 years after the initial survey in order that crucial situations may be ascertained, trends studied, and suitable measures recommended.

G. Supplementing governmental activities designed to aid private owners in building up and conserving their forest stands, it is necessary that legislation be enacted to give the public a strong measure of control over cutting practices on private lands. Such a legislative program has been recommended to the Joint Committee of Congress on Forestry by the United States Forest Service.

Water Resources Development

I. *Development of Undeveloped Wealth-Creating Water Resources.*—A. For servicing post-war industries, raising regional income, and absorbing post-war unemployment, the following policies are especially required:

1. Immediate preparation of drainage basin plans, for use in post-war readjustment, by the Drainage Basin Committees of the seven Southeastern States, with full assistance of the State and Federal agencies represented thereon.

2. Fullest utilization of findings of the United States Army Corps of Engineers in respect to needed harbor- and stream-improvement projects remaining undeveloped after the war to provide immediate post-war employment; further analysis and over-all planning such as any projects may require, to be expedited during the war period.

a. Similarly in regard to findings of United States Army Corps of Engineers concerning economically feasible general or local flood control projects.

b. Similarly in regard to hydroelectric power developments given number one preliminary priority ratings on basis of economic feasibility.

B. For effectuating sound principles of long-term planning in future developments of water resources:

1. No navigation, flood control or hydroelectric project to be undertaken without full and final exploration of the feasibility of a multiple-purpose development.

2. Actual construction of any hydroelectric development should begin only after thorough planning by local, State, and Federal agencies for the resettlement of dislocated population, the readjustment of State and local governmental finance, and the translation of the newly developed power, navigation, and land resources into agricultural and industrial wealth and income.

3. Proposed power developments previously given low priority ratings by power specialists to be subjected to periodic reexamination in the light of changing economic and technological conditions.

4. Aid and stimulus by Federal and State agencies to the officials of local governmental units in areas which are liable to damage by flood to the end that such areas be zoned, restricting their use to purposes that would avoid loss of life and property through floods.

II. *Solution of Water-Control Problems, Especially in Urban Areas.*—A. For the protection of communities against various losses, risks and detriments connected with water supply, the following measures are indicated:

1. Educational programs by Government agencies in charge of administration of water supplies at the local level, to develop a popular understanding of local water supply problems and the measures designed for their solution.

2. Immediate sponsoring, by State Departments of Health in collaboration with Drainage Basin Committees, of scientific surveys to determine, for each representative local area, the rate at which underground water supplies can be used without dangerous depletion.

a. Special surveys by State health departments of Atlantic and Gulf Coast States to determine

ground water levels necessary to prevent salt-water intrusion.

b. Surveys by urban areas in proximity to proposed water storage projects to determine the adequacy of their water supplies and possible use of nearby reservoirs to supplement existing supplies.

c. Equitable legislation by States, on the basis of scientific surveys, to eliminate wastage of water, and excessive lowering of ground water levels.

3. Comprehensive sewerage systems or other facilities of sewage disposal, approved by State boards of health, should be required of all urban communities, regardless of size; and all dwellings accessible to such systems should connect therewith.

4. In rural areas, the minimum sanitation requirement that each dwelling unit be provided with sanitary means approved by the State Health Department.

5. Treatment of most, if not all, sewage disposal before release into the carrying stream.

6. Streams of the Southeastern Region should be classified as to their highest use and permissible degree of pollution, by Drainage Basin Committees under leadership of the Water Resources Section of the National Resources Planning Board. Other activities required to control stream pollution are:

a. Exploration by State sanitary engineering divisions of possibility of interstate compacts to abate interstate stream pollution problems.

b. Formulation and enactment of adequate State legislation to control stream pollution and facilitate interstate compacts.

c. Staffs of State sanitary engineering divisions to be augmented by additional technical personnel to administer and enforce these and other regulations.

7. Continuance and extension of the soil conservation programs of the United States and State forestry and agricultural agencies are essential to protection of the water supply of communities and of private interests therein.

III. *Drainage.*—A. For the protection of the health of the people against menaces connected with malaria, the following measures are indicated:

1. Physical and financial rehabilitation of many agricultural drainage districts of the Southeastern Region which are in a deteriorated condition; Federal and State agricultural agencies to make special efforts to assist.

2. State advisory services to communities in need of malaria control to be augmented to the point of elimination of areas of acute incidence of malaria.

a. Expanded antimalaria education programs by State public health services.

b. Qualified technical guides to community efforts against malaria.

c. Malaria control to be planned for in new community developments.

3. Especial provisions for malaria control in damming the region's streams, including advance planning for the elimination of all factors favorable to the breeding of mosquitoes.

a. Legislation to confer upon State boards of health the authority to impose the above requirements upon all construction projects.

Business and Industrial Development

I. *Development of Manufacturing in the Southeastern Region.*—A. For increasing nonagricultural employment and regional income, private and public forces should concentrate upon the development of a greater quantity and more varied qualities of manufacturing; this being primary to other forms of business and financial activity, as well as being the means of highest utilization of the regional resources.

II. *Desirable Types of Manufacturing for the Southeast.*—A. For the sound upbuilding of the regional economy, certain specific types of manufacturing are recommended as desirable, in light of careful analyses of resource capabilities and characteristics of the region's present industrial structure, the criteria of desirability being as follows:

1. Manufactures which add high value to the products they process, hence utilize relatively high proportions of skilled labor and disburse relatively high wages.

2. Manufactures which utilize the products of the region as materials, hence create secondary employment in the production of those materials.

3. Manufactures which are based upon the demands of the regional consumer-market and the regional business-goods market, and which would tend to relieve the regional price-levels by eliminating importing costs.

4. Manufactures of independent and intra-regional ownership and control.

III. *Categories of Manufacturing Within the Above Criteria.*—A. To implement the above standards, the following are required at appropriate locations within this region:

1. Manufacturing plants which process the wide variety of products of the soil now produced or to be produced under the recommended wartime long-range changes taking place in agriculture.

a. Planning for simultaneous agricultural and manufacturing developments, each being necessary to the other.

b. Production of processed foodstuffs, canning, meat packing, dairy products, for the regional market and secondarily for export.

c. Production of nonfood products derived from agriculture.

2. Manufacturing plants which process both softwood and hardwood lumber in a wider variety of forms and in finished forms, including the "quality" types of wood industries.

3. Manufacturing plants utilizing the regional steel, aluminum and other bulk metal products, and further refining the bulk production.

4. Manufacturing plants to balance the existing textile industry with textile-machinery and other "satellite" industries, and with the higher-value forms of textile processing.

IV. *Over-All Aids and Stimuli to New Manufacturing Developments.*—A. For establishing a background environment favorable to the new manufacturing industries which the region requires:

1. Increased public and private support of industrial research agencies and their programs, involving State and local governments, educational institutions, promotional agencies, and individuals in the business field.

2. Unification of the policies and objectives of promotional agencies throughout the region upon sound general programs of manufacturing development.

3. Improved institutional provision for the initial capitalization and financial accommodation of new manufacturing establishments of intraregional origin.

a. Facilities for the direction of regional savings into regional development, to diminish the exporting of needed capital.

b. Consideration and study of proposals for a regional form of "venture foundation" to foster new manufacturing developments.

4. Immediate study of the possibilities of converting the new war-production plants to purposes of peacetime production.

5. Continuance on a permanent basis of the occupational training programs established to train workers for war-production employment.

6. Revision of the "class" freight rate structure, in order to end existing freight-tariff barriers against the production of finished goods and the higher types of manufacturing in the Southeastern territory.

Educational Development

I. *Financing of Public Schools.*—A. For improving State and local financing of public schools the following deserve major emphasis:

1. Improvement in all States of the method of calculating educational needs.

2. More satisfactory integration and unification of State funds in determining the amounts of such funds needed by specific administrative units.

3. Increasing the proportion of State-provided funds in order to reduce inequalities in local ability to meet educational needs.

4. Increasing the proportion of available State funds distributed on the basis of demonstrated educational need and decreasing the proportion distributed on a per capita basis.

5. Establishment and enforcement by States of minimum standards for participation in State appropriations with necessary restrictions to preserve local control.

6. Elimination of discriminations in providing educational facilities as between urban and rural schools, elementary and secondary schools, and white and Negro schools.

7. Reorganization through consolidation of local school administrative units in several of the Southeastern States.

8. Establishing within States of uniform and fair local tax assessment bases.

B. Federal support for public education in the region is required. In order to attain the national average for current expenditures per pupil in average daily attendance (1938), the Southeastern States would have needed $160,446,486 in addition to actual current expenditures for 1938. This amount is in the direction of the total which the Federal Government must eventually appropriate for public schools in the Southeast. However, Federal aid should be provided with full regard for local control of the educational program.

II. *The Public School Curriculum.*—A. Recommendations relative to curriculum are particularly needed for a program to integrate agencies interested in curriculum construction. The general character of this program follows:

1. Each and every agency of the State Government whose program involves education for its proper functioning should participate in the construction of the public school curriculum under the guidance of the State Department of Education. Some of the State agencies which should coordinate their educational functions are: State Industrial (correctional) Schools, Conservation Commission, Health Departments, Department of

Agriculture, Department of Public Welfare, State Librarian, State Police, Highway Department, State Fire Marshal.

2. Colleges and universities, teachers' professional organizations, lay organizations, the United States Office of Education and other Federal agencies should participate in an advisory capacity in planning the public school curriculum.

III. *Teacher Training and Certification.*—A. The program of teacher education and certification adopted by the Southern Conference of State Directors of Teacher Education and Certification at Atlanta, in April 1941, should be adopted and closely followed by each State in the region.

1. Especially significant is the acceptance of the minimum pattern proposed by this conference as a basis of certification. The keystone of the pattern is that the amount and quality of training of an out-of-State applicant for a secondary certificate shall be substantially equivalent to that required for the secondary certificate in the State in which he applies.

B. It is also recommended that State departments of education through their directors of teacher training and certification formulate a region-wide program for the training and certification of elementary teachers similar to that already developed for secondary teachers.

IV. *Continuity of Service for Public School Teachers.*—A. As a basis for bringing about improvement in continuity of service for teachers, research leading to a thorough knowledge of present practice is the first step required.

B. To prove effective, legislation in respect to continuity of service should be enacted subsequent to acceptance in general practice. The legislative program for continuity of service should be planned as a whole even though it is attained by a number of separate acts.

C. It is desirable that proposals relating to continuity of service for teachers originate with State educational associations.

V. *Negro Education.*—A. Important activities that should be continued or undertaken are:

1. Continuing research and evaluation of needs in the field of Negro education.

2. Conferences, study groups, and college seminars directed toward better understanding of the problems of Negro education.

B. Required improvements in Negro education include: More adequate financing of Negro schools, more equitable pay and higher standards of training for Negro teachers, greater emphasis on compulsory attendance, and improvement in State services in the field of Negro education.

Public Health Development

I. *Income Level in Relation to Health.*—All health programs in the region should include as a phase of their educational activities emphasis upon the necessity for lifting the income level in order that people may provide themselves with standard diets and other protection against diseases common to the region's low income groups.

II. *Nutrition.*—All existing county and district health departments, as well as State departments should inauguarate programs of nutritional research and education. For this purpose, a goal for each county, district and State department should be to add to its personnel a person technically trained in the field of nutrition education.

III. *The Health Program at the State Level.*—There should be a reorganization of the health program at the State level with the incorporation into health departments of functions which are essential to a well-rounded, thoroughly integrated and economically efficient program. Certain functions, which in some State are not now in State health departments and which property belong in these departments, should be transferred from other agencies or simply added as new functions of the State health department, such as, control of tuberculosis hospitals, control of mental hospitals, food and drug control, licensure of professions and agencies significant to public health, rodent control, garbage disposal, and sanitary control of milk.

IV. *The Health Program at the Local Level.*—A major goal of the health forces in the region should be the establishment of full-time health departments in the region's counties now without public health services. These counties are distributed among the States as follows: Florida, 35; Georgia, 106; Mississippi, 19; North Carolina, 19; and Tennessee, 25.

V. *Distribution of State and Federal Funds.*—A. Basic studies are required of (1) the ability of local governmental units to finance public health programs, and (2) health needs of counties.

B. On the basis of such studies more adequate methods of distributing funds for health purposes should be devised so that the distribution will truly equalize the cost burden for health protection. (A method for deriving a formula is suggested in the Public Health recommendations, p. 207–208.)

VI. *Personnel.*—A. Universities with departments of medicine should place increased emphasis on training doctors and nurses for employment in the field of public health. This training should have as its goal not only technical efficiency, but also a cooperative view in respect to public health.

B. The personnel of county and district health

departments should be increased to and maintained at a level of four or more employees per 10,000 of the population.

Housing Development

I. *Large-Scale Post-War Public Housing Development.*—A. For the twofold purpose of creating post-war employment and accomplishing lasting results in health and social betterment, the following are recommended for immediate planning:

1. Large-scale slum clearance and replacement projects in urban centers of the Southeast.

2. Widespread improvement in farm and other rural housing.

3. Immediate assembling of data and formulation of plans by all local housing authorities in the Southeast, with cooperation of local planning commissions. Indicated scope of program:

a. Urban: Replacement of 20 percent of houses, or 329,114 houses, in the 7 States, in a 5-year program.

b. Rural: Replacement of 50,000 farm houses in a 5- or 6-year post-war program, repair and modernization of 50,000 substandard farm houses, and replacement of 50,000 rural nonfarm houses in a 5- or 6-year post-war program.

4. Financing: United States Housing Authority, with aid of Farm Security Administration on rural housing.

B. As special projects for housing and economic benefit combined:

1. Seven industrial garden cities, one in each State as on a demonstration basis, integrated with a variety of industries, along the line of Letchworth and Welwyn, adapted to Southeastern conditions.

a. Demonstration of Federal financing.

b. A demonstration of investment opportunities for private capital.

2. Conversion of national defense housing developments into permanent industrial garden cities in post-war period.

a. To conserve investment in community facilities.

b. As demonstrations.

II. *Continuing and Additional Aids to Private Housing Development.*—A. For the purposes of a permanent and long-term activity in the private construction of adequate housing, the following are recommended:

1. Continuation of the mortgage insurance program of the Federal Housing Administration.

2. Supplementing of that program for lower-income groups by Federal legislation providing for long-term low-interest financing to nonprofit lending companies along lines of the Belgian and New Zealand acts.

Recreational Development

I. *Local Recreation for Cities and Small Communities.*—A. There are in the region approximately 77 cities of 10,000 or more inhabitants, now without any public recreation facilities, which should have these facilities provided. While some of these cities may be able to support their own programs, many of them will require State and Federal aid.

B. In communities under 10,000 and rural farm areas, community recreational areas should be established in conjunction with consolidated school plants. This program would, of course, require the cooperation of the public schools and public recreational agencies.

II. *State Systems of Non-Urban Parks.*—A. In each of the States there are systems of nonurban parks and recreational areas. In general these facilities require further extension, and especially do existing facilities need additional equipment. Better facilities for Negroes should be developed in all of the States. In several States the purchase of areas to be held in reserve for future development would be a sound policy.

III. *Travelways.*—A. To provide the touring public with travelways, especially through scenic areas and between recreational sections, the proposed Federal system of recreational travelways for the Southeast should be gradually developed until completed. This proposed system will provide three main north-south routes linking the eastern seaboard and the Great Lakes Region with Florida and the Gulf; one east-west route between St. Augustine, Fla., and New Orleans, La.; and several connecting links between these main trunk lines.

IV. *Interstate Planning.*—Some type of joint public and private organization should be established to plan and promote interstate recreational developments.

Government and Public Administration

I. No detailed plan for a development program in the field of government is offered here because of the variety of conditions which prevail and the need for adjusting any plan to specific situations.

II. *Four General Lines of Endeavor for Each State and a Majority of Local Jurisdictions are Recommended as Follows.*—A. Improved public reporting, with a fresh appeal to citizen interest, as well as conciseness and accuracy.

B. Continuing and increased research and study of governmental problems by the institutions and organizations of the region.

C. A further awakening of civic responsibility—including voting and otherwise participating in governmental processes—through public education.

D. Improvement of the region's economic base for the support of government.

INTRODUCTION

The Southeast Region, embracing the States of Alabama, Florida, Georgia, Mississippi, North and South Carolina, and Tennessee, is an area well adapted to integrated regional development. It is rich in natural resources, with abundant rainfall and long growing seasons, with fertile and varied soil types, with minerals and forests, with fuels and power, and with mountains and plains, natural harbors, and wide rivers.

The economic life of the Southeast Region up to the present has had its basis in these natural advantages. They might have been much better utilized, had the necessity been apparent earlier and had the techniques been available, to achieve an economy adequately balanced among agriculture, business and industry, with each contributing to the full development of the others.

Within the region there are several subareas, each containing basic resources of sufficient quantity and diversity to have provided opportunities for specialized development leading to a more dependable regional income and employment pattern. Thus, the mountain areas of northern Georgia and Alabama, eastern Tennessee, and western North Carolina, with deposits of coal and iron, forested slopes and power-laden streams, contained the requisites of an industrial stronghold. The Mississippi Delta, the Black Belt, and much of the Upper Coastal Plain possessed the soil and the climate for a diversified agriculture. The Piedmont might have been devoted less to agriculture and more to light industry and manufacturing, utilizing the potential power in the Fall Line streams to process the plentiful raw materials of agriculture and forestry.

However, the natural resources of the region favored the predominance of agriculture over business and industry to a degree almost exclusive of the latter during two centuries of settlement and development. Furthermore, international factors influencing the economy of the Nation as a whole gave rise to domestic policies of business and government which stimulated the natural inclination of the region toward agriculture. As a result, cotton and tobacco, in the single cash-crop system, became the staple products of the region, overshadowing other economic possibilities and even preventing the whole or partial use of many resources. Agriculture was extended into areas from which it might better have been excluded; the predominance of cotton culture in the rich soil of the Mississippi Delta, which is capable of supporting a most diversified quantity of products, and the dense farming settlement of the rugged mountain areas are examples of the resulting maladjustments with which the Southeast must deal today.

Regional Development and National Policy

Many forces have contributed to the regional characteristics of the Southeast. Common social and political traditions and similar economic conditions have combined to produce in its people a likeness of thought and feeling. Stuart Chase has defined a region as an area in which nature acts in a uniform manner. Geographers have described the influence of climate, soils, and topography upon the development of the Southeast. Historians have analyzed the growth of its distinctive economic and political traditions. Few discussions of regionalism have resulted in agreement as to its essential meaning which varies with the point of view from which it is considered. It may be generally accepted, however, for the practical purposes of this report, that a region is (1) an area unified by common economic and social purposes, large enough to contain the means for a reasonable adjustment of its problems and activities, and (2) small enough to develop an awareness of local or community interests and objectives,[1] and of its differences from other areas. The first trait may be called "regional homogeneity;" the second, "regional consciousness."

Regional consciousness, however, should not be identified with "sectionalism," which places the local above the national interest, and which in the past has led to movements to separate sections from the Nation. Regionalism should be regarded rather as a form of local patriotism which, like good local self-government, is in alliance with rather than in opposition to national interests.

Whether rightly or wrongly, the South has been regarded as the most sectionally minded of our major areas. No one feels today that regional self-consciousness is necessarily bad, or that it is confined to the Southeast. "A region," writes Stuart Chase, "provides a major basis for economic planning; a section, a basis for political uproar."

According to Rupert Vance, sectionalism is a possible danger in any country as large and diverse as our own. One of the legitimate aims of national-regional planning is to aid in preventing those conditions which encourage the growth of sectionalism. Economic diversities and inequalities may offer the basis for sectional conscious-

[1] See *Regional Factors in National Planning and Development*, National Resources Committee December 1935, p. 155.

ness and sectional movements. Where the economic interests of certain areas are sufficiently divergent from those of the Nation or its other major areas, conflict centers may be expected to develop. A diversified economy, reasonably balanced among the extractive, manufacturing, service, and financial interests, is accepted as primarily essential to a modern nation. Lack of such balance may so penalize a region that it may fail to share in national prosperity. National unity follows when all regions have an appreciable stake in all enterprises that lead to national prosperity.

In its simplest form the relation of the region to the Nation is the relation of the part to the whole, the problem of securing unity out of diversity. In organization and political administration we have the 48 States and their Federal union; in such problems of public policy as interstate migration, conservation, agriculture, or social security, areas are considered in terms of certain geographic, economic, and social characteristics possessed in common. Thus, for example, we simplify both the problems of research in land utilization and those of administering agricultural programs by dealing with types of farming regions, covering many States. So logical is this approach that most Federal agencies entrusted with the administration of programs have found it practicable to set up regional areas based on such criteria.[2]

In the Tennessee Valley Authority, the Southeast has the outstanding development in regional-national planning experimentation so far projected in the United States. In the present wartime emergency it demonstrates, in power production (thus, crucially, for aluminum production), in navigation and flood control, and in economic well-being, national progress and security in a country as large and diverse as ours, the importance of the integrated development of broad regional areas.

We cannot discuss planning without considering whether improvements in technology and the industrial arts would raise the standard of living in the Southeast and thus for the Nation. Today, for example, with electrification and modern agricultural and industrial methods the TVA is in the position of saying to the people in the Valley: "There is 10 times as much potential wealth in this region as we are realizing." Only on such a basis can the Federal Government expect to secure the tax resources which support and the manpower which defends our national survival. The national interest in regional development, accordingly, is related to such desirable goals as increased economic well-being, equalized cultural and educational opportunities, and effective national defense.

[2] *Ibid.*

Regionalism thus represents a movement toward national strength. In place of sectionalism which is a divisive movement, the regionalist would substitute a program of regional-national integration in which the Nation would gain much of its power from the balance and accommodation of regional variations.

Southeastern Regional Planning

The story of low regional income and its consequences has been told often in the literature of the South, demonstrating clearly the urgent need for regional planning. In solving its problems the Southeast Region must reckon with an area already settled and developed intensively (Fig. 1) and thus reluctant to undergo changes; whatever program of redevelopment may be devised must necessarily conform to the well-established traditions and characteristics which motivate its people. Present land settlement and development will determine very largely the kind of regional plan which is immediately needed for the Southeast as well as the method of approach to regional planning, a relatively new thing in the Nation and in the Southeast.

Two groups of adjustments are involved. First, there should be adjustments on the farm involving a drastic shift away from the single cash crop to a more diversified food and livestock type of farming. Such adjustments require more land than the single cash crop for an equivalent dollar return and necessitate the shifting of a large proportion of the farm population to employment in nonagricultural lines. Secondly, a larger number of nonagricultural employment opportunities must be created by the establishment of additional industries which will, in turn, provide employment opportunities in the "services," and markets for farm foodstuffs and raw materials, thus making the shift in crop practices and population migration possible. From these two major groups of adjustments there is reason to believe that the income level of the individual and, thus, the tax base of State and local government, will combine to eliminate the major deficiencies in health, education, and housing.[3]

Almost without exception these adjustments are vitally necessary in all parts of the region and in its initial stages Southeastern regional planning, if it puts first things first, must concern itself with ways and means of facilitating them. Consideration must be given to the nature and status of human and physical resources in each of the several subregions. For example, the type of farm adjustment required in the Black Belt will differ considerably from that required

[3] *Development of Resources and Stabilization of Employment in the United States*, National Resources Planning Board, January 1941, pp. 158-159.

in the mountain areas; other adjustments and measures, such as a revamping of the freight rate structure, or the use of regional capital for industrial development, require no major modification in light of either Black Belt or mountain conditions. The ultimate regional plan for the Southeast must be a composite of several subregional plans; but if regional planning in the Southeast is to contribute to the solutions of problems immediately pressing and looming up in the post-war period, it is obliged, in its present modest state of maturity, to see to it that the known avenues of adjustment applicable on a region-wide basis are presented. Since the maladjustments which vex the Southeast stem largely from a type of farming common throughout the region and since the required industrial development can come if certain principles, practices, ideas, facilities, and services are made to function everywhere in the region, the obligation to proceed in planning on a region-wide basis is neither disturbing nor without considerable promise. Indeed, it is from its very promise that the region has good reason to expect to achieve a major improvement in its present economic condition.

Nature and Content of the Report

Against this background of basic observations about the Southeast—its settlement and development, its regional homogeneity and regional consciousness, its relationship to national development, this report on a program for Southeastern regional development takes its point of departure.

As recently as 1940, in the drafting of such a program, it was possible to proceed directly to build upon the rich body of facts and figures and analyses which Howard Odum, Rupert Vance, T. J. Woofter, and many other students of Southeastern regional development in the colleges and in government had provided. At that time, regional planners had a picture of the basic working procedures to do the job which had been cut out for them.

Then came the first real impact of war upon the region—the initiation of military training and the industrial expansion stemming from defense preparations and lease-lend requirements. The simple fact is that a detailed program for the agricultural rehabilitation of the Southeast drawn at that time would be obsolete today, as would be one in the field of industrial development and in almost every other phase of regional activity. Probably none of the basic directions of needed adjustment have been changed, but the timing, the emphases, the opportunities (for there have been both drastic losses and major gains stemming from the war) look quite different than they did at the outset of the war.

Fortunately, before the impact of war on the regional economy began to be felt, in the fall of 1940, the decennial *Census* became available, providing an up-to-date picture of the region. Thus it was possible to measure the progress made during the 1930's on the central adjustment problems of the region. Following the economic collapse early in that decade, a series of programs, both in private enterprise and in government, were directed at agricultural adjustment and industrial development in the region. What changes have they wrought in population, in farming, in industrial production, in employment, in income? At what point on the road to economic rehabilitation did they leave the region at the close of the decade before the advent of war? Has war changed the picture as it looked then? What post-war problems and opportunities loom up clearly? What will a long-range regional development program contain in light of the progress made up to the close of the decade, the impact of war and the problems and opportunities of post-war adjustment?

As an attempt to answer these questions, this report sponsored by the Southeastern Regional Planning Commission is the joint product of more than a year of collaborative effort on the part of the staff and consultants of the Atlanta Field Office of the National Resources Planning Board, the State Planning Boards of the seven Southeastern States, and a number of agencies of Federal and State government. This report was initially drafted in 1941 and during 1942 was reviewed, revised, and brought up to date for 1941.

A report on regional development at any time is prepared in a changing environment; its conclusions and suggestions are valuable only if they may be modified with changing conditions. In the drastically changeable environment of war this is especially true. It has been possible, however, to discern long-range development opportunities despite war with sufficient clarity to permit the charting of the broad outline and many of the details of a program of post-war regional readjustment. These outlines and these details are in continuous process of refinement and supplement.

This report is divided into two major parts. Part I is composed of three sections: (1) a descriptive and analytical inventory of the basic material and human resources of the Southeast, the facts and figures concerning its climate, soils, forests, rivers, minerals, and the recent changes affecting the people of the region, their distribution and growth, urbanization, and composition; (2) a summary of the basic characteristics of the regional economy as it appeared at the outset of the war and a review of the impact of war during 1940 and 1941 and its major implications to long-range regional development; (3) an interpretation of what has gone before. It attempts to evaluate the region's capabilities

as evidenced by the status of the development and use of human and material resources as it appeared immediately preceding the war and in view of the implications of war activities in the Southeast. It suggests realizable, over-all, objectives for the region as a whole, and for each of several major divisions of resource use, and points out the general directions which post-war regional development should take. It is an expression of competent regional judgment of the future the region desires, derived from the logic of regional, national and world trends, the experience of the intelligent leadership of the region, and the findings of serious students of southern regionalism. It provides a frame of reference within which to consider the material in Part II of the report.

Part II is devoted to a series of technical statements prepared by Southern regional specialists upon the basis of current developments in each of the fields considered, with reference to long-range needs, special wartime developments, and problems of post-war readjustment. While the first two of these, *Agriculture* and *Forestry*, to foster the fullest development of each, should be considered jointly, the Southeastern forest resource is sufficiently unique, both in terms of the proportion of the region's population dependent upon it and in terms of the contribution to regional wealth latent in forest conservation and use, to require separate consideration. The third of the functional statements is *Water Resources*, a development field which probably holds more promise for the Southeast than any other. The fourth statement is *Business and Industry* and the basic regional problems related to the commercial and industrial utilization of human and physical resources. Selected aspects of human welfare and the conservation and development of human resources are dealt with in the statements on *Education*, *Health*, *Housing* and *Recreation*. Finally, since development in all of the foregoing fields will involve the cooperative action of people through government, the last of the statements is devoted to *Government and Public Administration*. Each of the statements concludes with recommendations for public and private action.[4]

The specialists who collaborated in the preparation of the material in Part II of the report have been acutely aware of the impact of war on the various fields of their speciality, the imperative necessity of seeking a major contribution to the war effort within each of the fields, the development problems which the cessation of hostilities will pose in each, and the equally imperative necessity of currently preparing such programs as will exact from each of these various functions a major contribution to the prosperity of the region in peace. The statements seek to clarify and vivify the development opportunities latent in each of the fields with which they deal. They set forth factual material intended to provide layman and technician, alike, with a working understanding of the several major aspects of long-range development involved. They suggest guiding principles and reasonable standards and describe technical difficulties and obstacles which will confront constructive efforts. The statements should prove a valuable store of reference material for agriculturalists, industrialists, businessmen, public officials, for planners at the various levels of government and for students.

[4] Attention should be called to the fact that numerous changes in agricultural production goals and programs resulting from efforts to maximize food production have occurred subsequently to the preparation of those sections of this report (pp. 33 and 56 ff.) which deal with the agricultural production program.

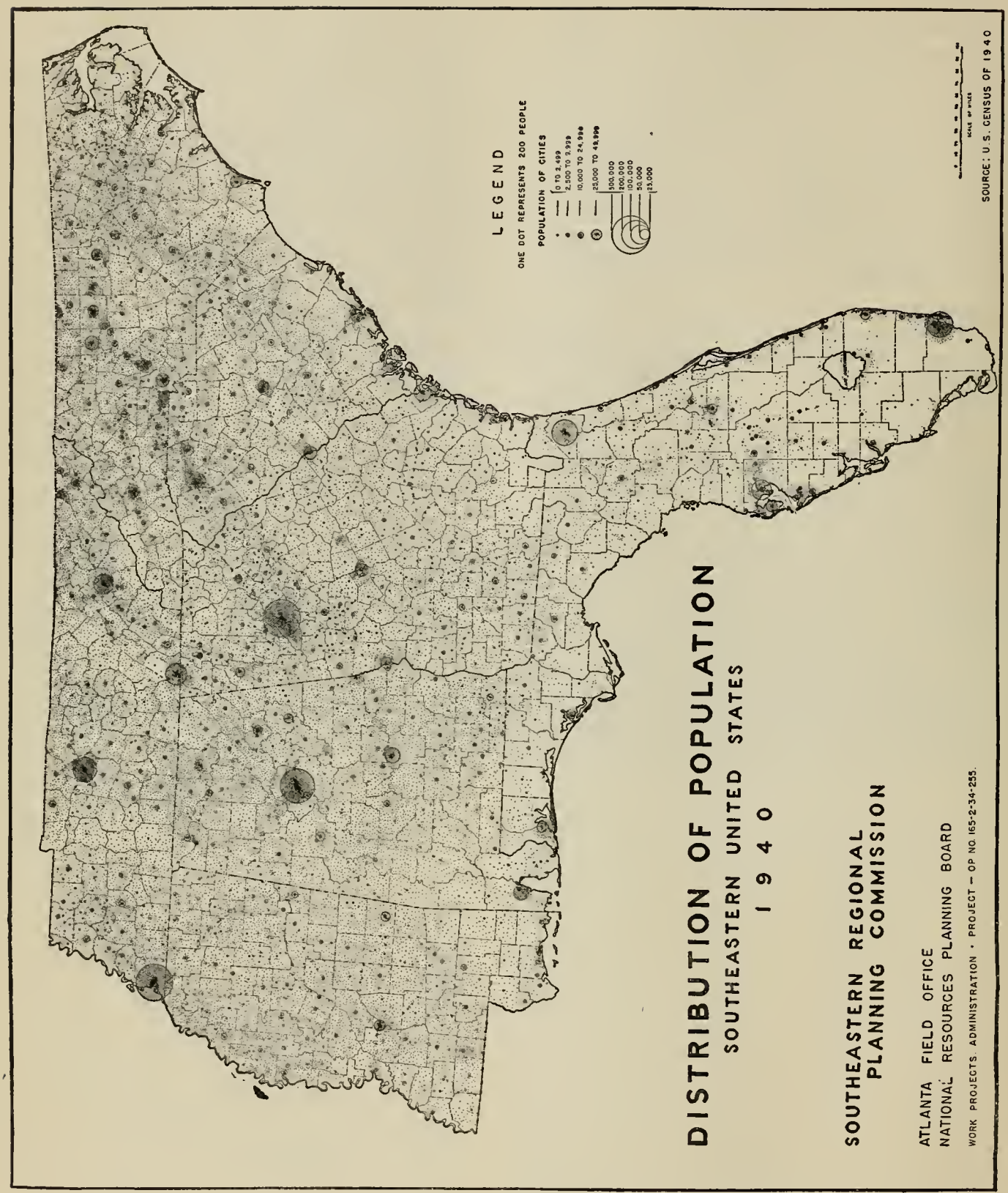

LEGEND
ONE DOT REPRESENTS 200 PEOPLE
POPULATION OF CITIES
0 TO 2,499
2,500 TO 9,999
10,000 TO 24,999
25,000 TO 49,999
100,000
100,000
100,000
50,000
25,000
SOURCE: U. S. CENSUS OF 1940
DISTRIBUTION OF POPULATION
SOUTHEASTERN UNITED STATES
1940
SOUTHEASTERN REGIONAL
PLANNING COMMISSION
ATLANTA FIELD OFFICE
NATIONAL RESOURCES PLANNING BOARD
WORK PROJECTS ADMINISTRATION • PROJECT — OP NO. 165-2-34-255.

Figure 1.

The resources of any region group themselves into two general classes. One class is called variously "physical," "natural," "material," and has to do with the things nature has given man to work with. The second general class of resources is called "human resources" and deals with the quantity, characteristics, and distribution, of the people themselves, whose skill or lack of skill determines the use of the resources nature provides.

Natural Resources

Climate

While the Southeast does not comprise a sharply defined climatic province, it contains no State which cannot count on a 6-month growing season, with some of the southernmost sections of the region having a growing season as long as 260 days. The average winter temperature ranges from above 40° in the northern and higher parts of the region to around 65° in southern Florida, and summer temperatures vary between 76° and 82°.

State:	Average temperature January	Average temperature July	Average annual number clear days
Alabama	46. 6	80. 3	161
Florida	59. 2	81. 3	162
Georgia	47. 1	81. 1	168
Mississippi	47. 5	81. 1	171
North Carolina	41. 7	76. 9	166
South Carolina	45. 9	80. 0	175
Tennessee	39. 2	77. 7	156

With these mild temperatures come sunny skies and good "growing" weather, for the Southeast has more clear days per year than any other section of the country save the Southwest.

This in itself would be of no advantage, but it is combined with abundant rainfall, for the most part well distributed. The entire region lies within the bounds of an area which has more than 40 inches annual precipitation and in many instances closer to 55 inches. (See Fig. 3.)

Soils

Combined with this climate, the region has great diversity of soils. For example, Alabama alone has 7 major soil types and almost 300 soil subtypes due, according to the soil experts, to the varying velocities of the streams which deposited the soils. This range of soils, coupled with variety of climatic conditions, permits the growing of practically any kind of agricultural product in the region. Many of the southern soils, though productive, are shallow and if not used wisely are subject to erosion. Open winters, with no time when the soil is frozen, impervious to rainfall, contribute to this leaching and erosion, particularly when the cover has been removed by the planting of cotton or corn. Unwise use of the soil has already wasted this important asset to the extent of 84,600,000 acres in the 10 principal cotton States.

Forests

Favorable soils and the combination of plenty of sunshine and ample rain over a long growing period have produced a great corollary resource in the forests which cover over half the region's surface and which provide the source of over half the Nation's second-growth saw-timber. Along the river bottoms are to be found dwindling supplies of mixed cypress, tupelo, and red gum; oak, hickory, and other hardwoods are especially plentiful in Tennessee and northern Mississippi and Alabama, although also heavily intermingled in some of the pine regions. The great pine forests of the Southeast are found chiefly in the Coastal Plain and are the source of more than 25 million cords a year for industrial use. (See Fig. 4.)

Rivers and Coasts

Fourth and highly important among its natural resources are the Southeast's rivers and coasts. It has been pointed out that the Southeast is in effect "an island surrounded by navigable waters—the Atlantic, the Gulf, the Mississippi, and the Ohio. Across the center and into the Ohio flows the Tennessee and down from north central Alabama runs the 9-foot channel of the Warrior and Tombigbee Rivers to Mobile."[1] These arteries are matched by a man-made network of 26,512 miles of class I railroads, over 70,000 miles of paved highways, and an extensive system of airways, giving the Southeast a more than adequate communication system for any kind of economic development (Fig. 5.)

The flow of the same streams that carry the region's freight and the flow of others not used for navigation account together for some 4¼ million installed horsepower of electric energy in the region. Abundant rain-

[1] *Fortune*, November 1938, p. 45.

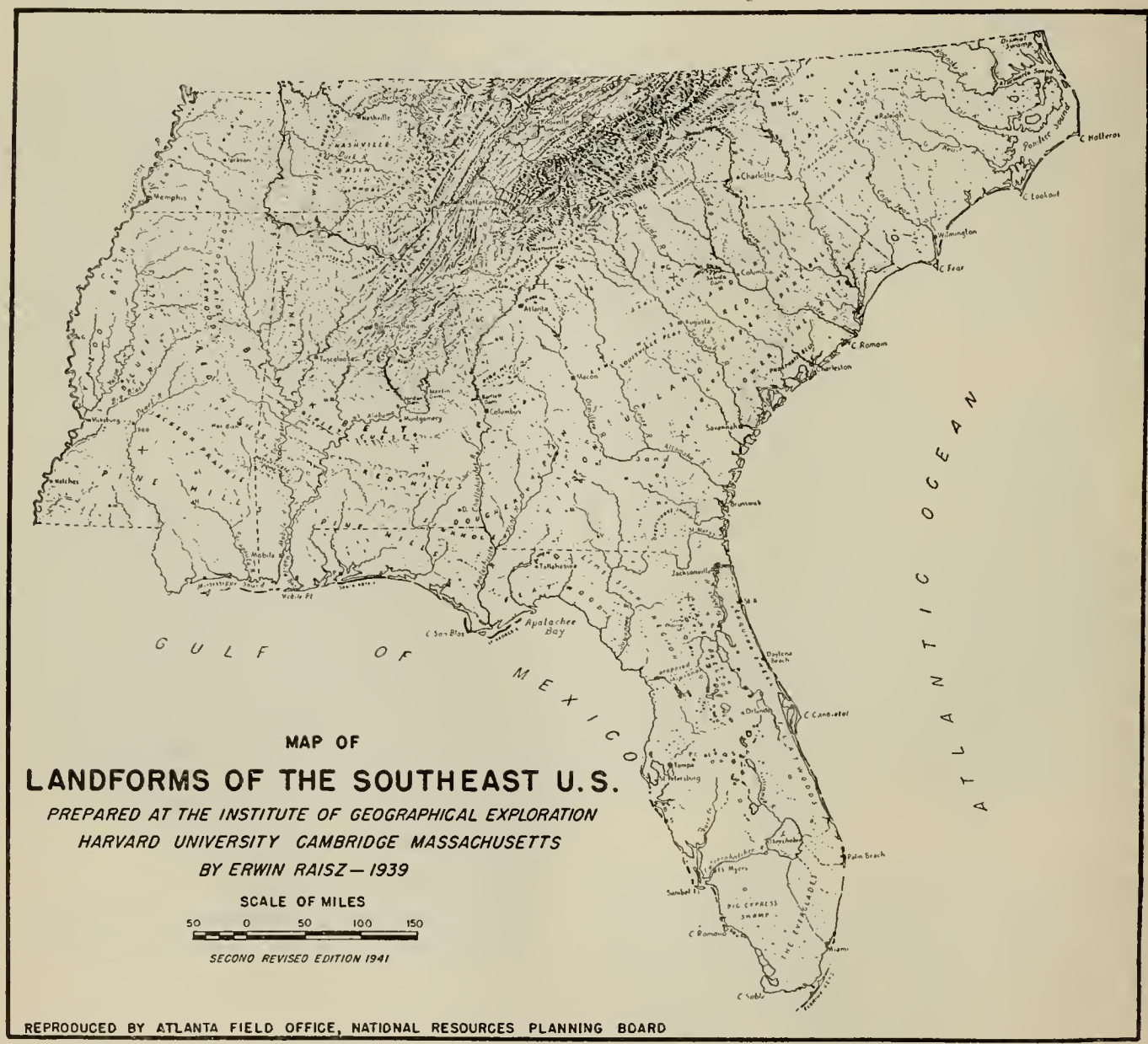
fall and mild climate make for steady operation of these facilities and provide the basis for future expansions.

The streams, too, are a major source of the region's excellent domestic and industrial water supply and provide quantities of fish for food and recreation. An additional supply of fish, shrimp, crab, etc., is found in Gulf and Southern Atlantic waters and is the basis for the extensive food industry which lines the coast.

Minerals

According to geological lists, over 300 minerals occur in some form in the Southeast. Unfortunately a great many of these, especially among the metals, must be ranked for the time being simply as "mineralogical curiosities." The important minerals in the Southeast are not, with the exception of iron ore, in the metals class.[2] They are for the most part those minerals which are cheap but abundant and provide the basis for a much steadier industrial development than the more

[2] Regional research in mineral resources is constantly confronted with the fact that what are not important reserves today may, through technological improvements in mining or extraction, or a change in price, become important reserves tomorrow. For that reason mineral resources for future development are usually not actually measured but are simply noted by occurrence in any form. The only practical measurement of the importance of minerals in the economy is in terms of current production figures. For example if manganese brings a price of 50 per unit, available reserves (i. e., ones which would be worked) in the Nation would only be around 100,000 long tons. But if the price per unit were to double, available reserves would be over 17 times that figure, or about 1,710,000 long tons.


GULF OF MEXICO
ATLANTIC OCEAN
MAP OF
LANDFORMS OF THE SOUTHEAST U.S.
PREPARED AT THE INSTITUTE OF GEOGRAPHICAL EXPLORATION
HARVARD UNIVERSITY CAMBRIDGE MASSACHUSETTS
BY ERWIN RAISZ—1939
SCALE OF MILES
50 0 50 100 150
SECOND REVISED EDITION 1941
REPRODUCED BY ATLANTA FIELD OFFICE, NATIONAL RESOURCES PLANNING BOARD

With permission of Ginn and Company

Figure 2

spectacular metal discoveries. (See Fig. 6.) The principal minerals in terms of value produced in the Southeast in 1939 were as follows: Alabama—coal, iron ore, cement, stone; Florida—phosphate rock, cement, stone, sand, and gravel; Georgia—stone, raw clay, clay products, cement; Mississippi—natural gas, sand and gravel, clay products, raw clay; North Carolina—stone, clay products, bromine, sand, and gravel; South Carolina—stone, clay products, raw clay, gold; and Tennessee—coal, stone, cement, and phosphate rock.[3] (Table I.)

The relative importance of mineral resources is indicated by the fact that in 1939 the seven States of the region produced $149,086,944, or 3.03 percent of the value of the national production. This meant $8.09 per capita for the region, against $37.32 for the Nation. The seven States ranked as follows: [4]

	Value of all minerals produced in State, 1939
Alabama	$52, 124, 382
Tennessee	40, 119, 893
North Carolina	18, 533, 720
Georgia	14, 633, 361
Florida	13, 060, 453
South Carolina	5, 422, 979
Mississippi	5, 192, 156

[3] *Minerals Yearbook Review of 1940*, U. S. Bureau of Mines, Washington, 1941, p. 22.

[4] *Ibid.*, State tables.

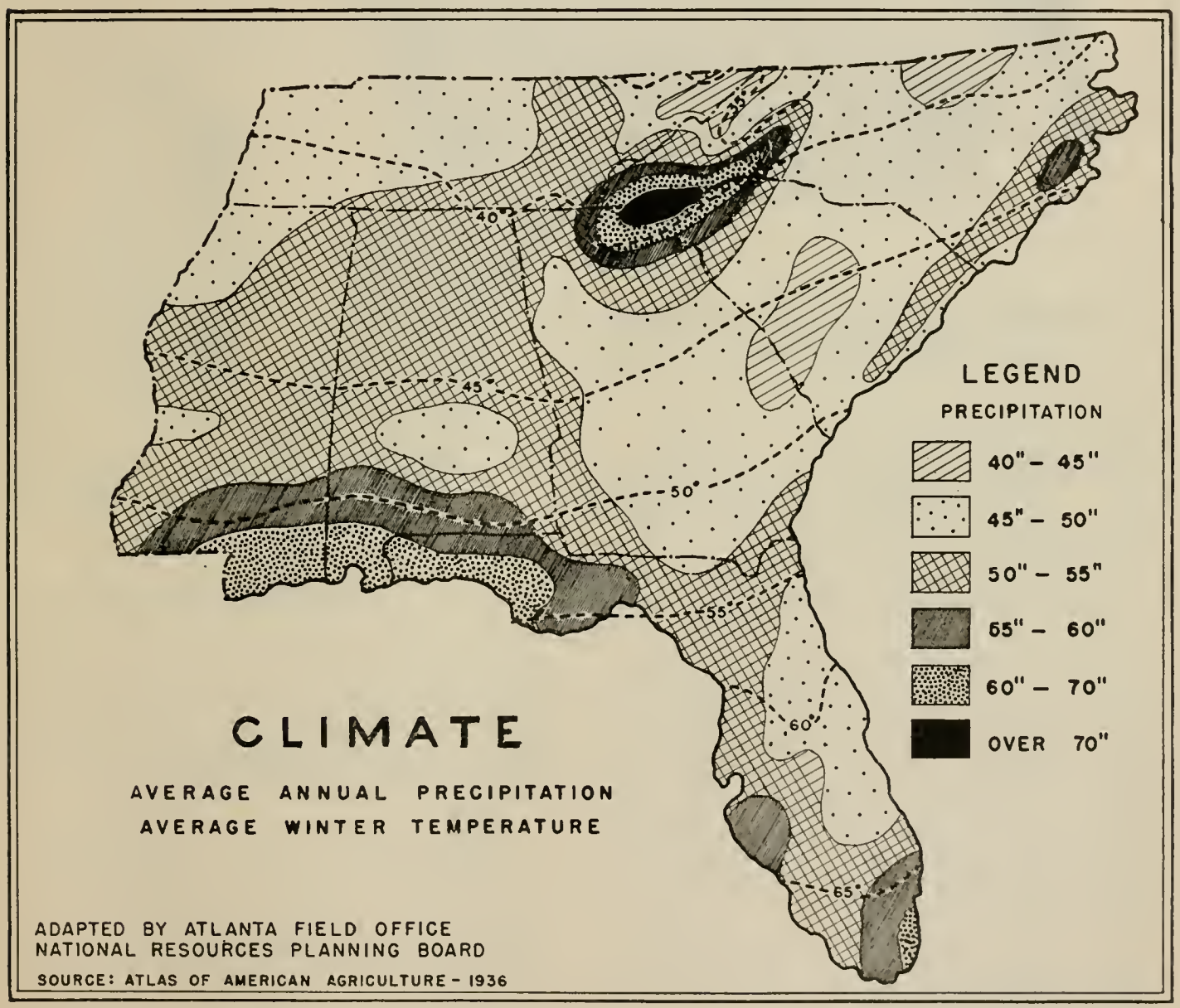


Figure 3

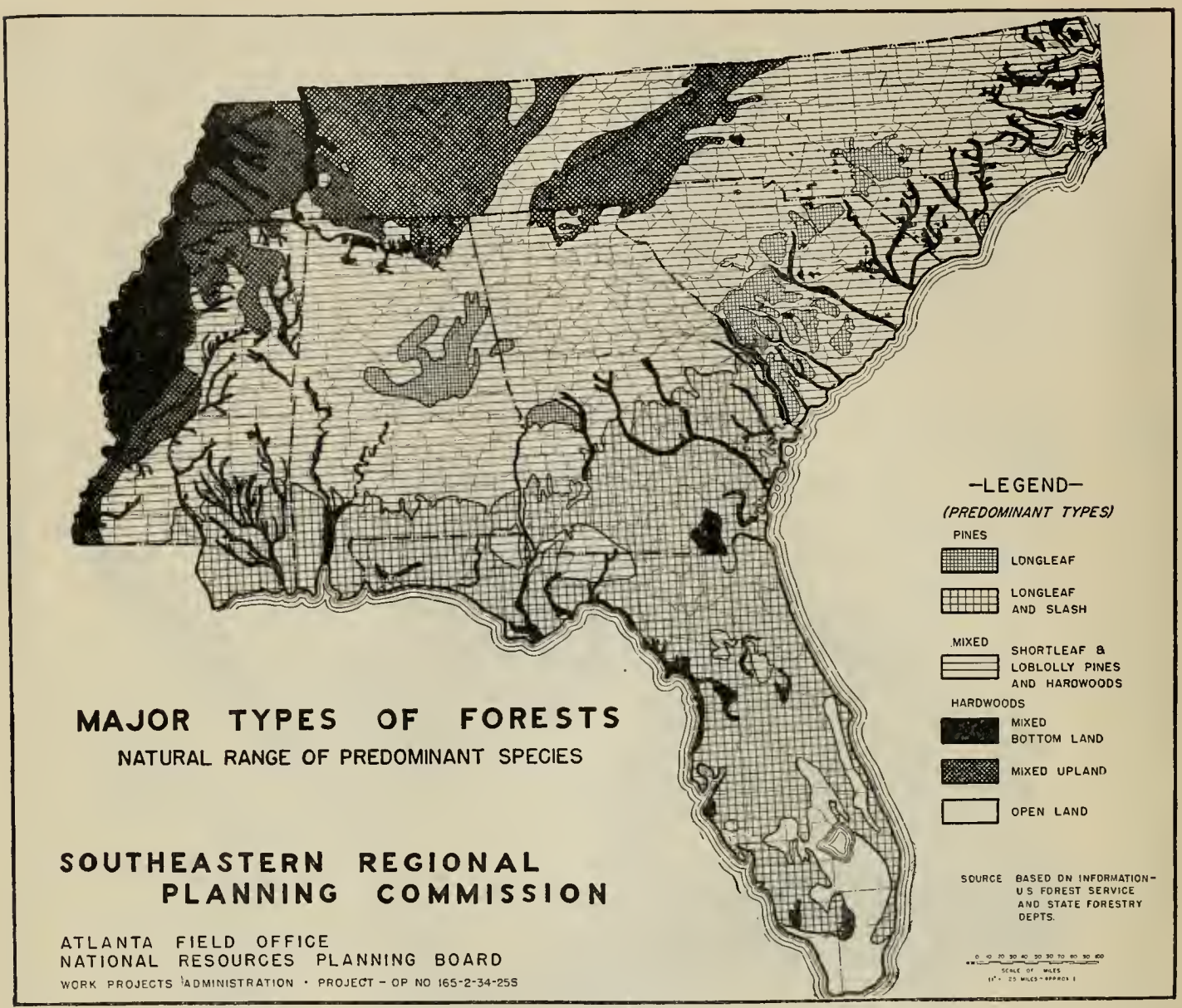


Figure 4

Since it is probably to its metallic minerals that a considerable portion of the South's new industry may be expected to turn, it is important to know what metals may be available. In 1936 the National Resources Committee's Planning Committee for Mineral Policy prepared a study of the mineral reserves of the United States as a basis for preliminary planning studies. The survey, which was for the most part based on secondary sources, thus reported the more important metallic mineral reserves in the Southeast:

Aluminum.—(Bauxite) present in Tennessee, some in Alabama and some in Georgia. The Southeast now contributes less than 5 percent of national production.

Asbestos.—Present in Georgia and North Carolina. A fairly large supply of present basic rock with a much larger supply of the hard rock, which may become valuable if methods of milling it can be devised.

Barite.—Georgia and Tennessee possess substantial reserves. Price increases would increase the amount of available reserves.

Chromite.—May be some usable low-grade ores in the Southeast. Reserves available at end of 1928 show:

	Tons
Alabama	66, 888, 712, 000
Georgia	919, 107, 000
North Carolina	66, 546, 000
Tennessee	24, 391, 867, 000
Nation	1, 414, 640, 192, 000

Copper.—Reserves of copper (not ore) available in October 1934, at 12 cents per pound, for metallic copper:

	Tons
Tennessee	60, 000
Nation	26, 390, 000

Gold.—(1929 survey) estimated production between 1927–50:

Minimum	*Maximum*
40, 000	200, 000 ounces for the Appalachian Region.
34, 760, 000	108, 050, 000 ounces for the Nation.

Graphite.—Some low-grade sources in Alabama.

Iron ore.—4,400,000,000 tons of available reserves in Nation. Some of the reserves are so situated that under present conditions they could be mined without much economic loss. In others only a slight shift in price, demand, or metallurgical specifications would make the ore available. In the rest, a profound change in the industrial economy of the Nation would be necessary before mining would become desirable. The South, other than Alabama and the Tennessee Valley, has 500,000,000 tons; Alabama has 1,500,000 to 2,000,000 tons, and the Tennessee Valley has 119,959,000 tons.

Manganese.—1,652,690 long tons of a grade good enough for making ferromanganese, are available in the Nation, but only when manganese is bringing an index price of $1 per ton. There is some low-grade manganese ore in Georgia, Tennessee, North Carolina, and Alabama.

Petroleum.—Mississippi lies in the "possible" area as do portions of Alabama, Tennessee, Florida, and Georgia (very small). The bulk of the rest of the region is in the "impossible" or "improbable" areas and the remainder is in the "unfavorable" areas.

Tin.—Occurs in the Southeast only as a "mineralogical curiosity." Considerable interest has been directed to tin lands in the Carolinas. Attempts have been made to mine tin in this area for many years with no success. A sufficiently high price would possibly bring out some production, but production in any amount that would form an important part of the domestic market is inconceivable.

Titanium.—Possibly some in the beach sands of North Carolina and Georgia.

Zinc.—12,167,580 short tons of minable metal in the Nation at a price around the 4-to 6-cent range. There are more submarginal reserves of zinc in the Nation than of most nonferrous metals. Mascot, Tenn., has 180,000 tons of reserves with some possibility of new discoveries.

TABLE I.—*Value of principal mineral products in the Southeast and percent of value of national production, 1939, by States*

States and principal minerals	Value of product	Percent of value of national product, 1939
ALABAMA		
Coal	$27, 708, 000	3.80
Iron ore	9, 971, 024	6.28
Cement	6, 690, 765	3.63
Stone	2, 516, 584	1.58
FLORIDA		
Phosphate rock	7, 893, 457	64.20
Cement	(1)	
Stone	1, 462, 730	.92
Sand and gravel	779, 708	.76
GEORGIA		
Stone	4, 838, 623	3.05
Raw clay	4, 162, 127	27.10
Clay products	2, 376, 225	1.93
Cement	(1)	
MISSISSIPPI		
Natural gas	3, 300, 000	.61
Sand and gravel	810, 933	.79
Clay products	761, 686	.62
NORTH CAROLINA		
Stone	6, 979, 426	4.40
Clay products	4, 595, 857	3.75
Bromine	(1)	
Sand and gravel	1, 001, 369	.98
SOUTH CAROLINA		
Stone	1, 732, 795	1.09
Clay products	1, 573, 470	1.28
Raw clay	1, 303, 163	8.48
Gold	484, 155	.24
TENNESSEE		
Coal	10, 402, 000	1.42
Stone	8, 312, 977	5.24
Cement	5, 613, 477	3.04
Phosphate rock	(1)	

[1] Undisclosed.

TABLE II.—*Total population of Southeastern States and United States, 1940 and 1930*

Area	1940	1930
United States	131, 669, 275	122, 775, 046
Region	18, 425, 162	16, 558, 383
Alabama	2, 832, 961	2, 646, 248
Florida	1, 897, 414	1, 468, 211
Georgia	3, 123, 723	2, 908, 506
Mississippi	2, 183, 796	2, 009, 821
North Carolina	3, 571, 623	3, 170, 276
South Carolina	1, 899, 804	1, 738, 765
Tennessee	2, 915, 841	2, 616, 556

Human Resources

The people of a region are the resource which gives meaning to its material wealth. It is within their minds that the means of creating and enjoying material wealth have their origin. Planning in a democracy has its origin, its instrumentation, and its ultimate objectives in the people. The purpose of population study is to present a frame of reference within which the people can plan their welfare. As Lorimer expresses it, "The study of population reveals underlying biological forces, which have far-reaching influence on economic productivity, distribution of income, national security, and personality development. The redirection of these forces in line with democratic goals is one of the major tasks of social engineering."[5] Facts relating to population density, rates of increase, extent of migration, and natural increase are instruments which regional planning uses to spot areas of economic isolation and poverty, as a basis for planned relocation in a program of agricultural adjustment and industrial development.

Population Distribution and Growth [6]

Total Population.—In 1940 the Southeastern States had 18,425,162 inhabitants (table II). Since 1930, the population has increased by 1,866,799, or 11.3 percent, while the rate of growth for the population of the Nation was 7.2 percent. Though the rate of increase for the Southeastern States declined from 13.5 percent for the 1920's to 11.3 during the past decade, this decrease in rate was not as great as that for the United States which declined from 16.1 to 7.2 percent.

[5] In George B. Galloway and associates, *Planning for America* (New York, Henry Holt Co., Inc., 1941), pp. 347–348.

[6] The sources of the data in this section on population are the United States census publications for 1920 and 1930, census releases for 1940, and the vital statistics reports of the Division of Vital Statistics, Bureau of the Census, for the years 1930–39, inclusive.

The 7 Southeastern States, constituting 11.2 percent of the land area of the United States, provide living space for 14.0 percent of the Nation's population. In 1940 the region had 56.3 persons per square mile compared to 44.2 persons for the Nation as a whole. With the exception of Florida, each State in the region had a higher density rate than that for the Nation. North Carolina had the highest density rate, 72.7 persons per square mile. Every State in the region experienced an increase in density during the last decade. Figure 1 gives a fairly comprehensive picture of population distribution in the region. Extensive areas of marked density are the upper half of the Middle Coastal Plain, north of Sumter, S. C.; the central portion of the Piedmont Plateau extending from the northern boundary of North Carolina southwest to Atlanta, Ga.; the Appalachian Valley from Birmingham northeast through the northwestern corner of Georgia to Knoxville, Tenn.; and finally the central Mississippi Delta area. The pattern of population distribution is made more vivid but less exact in the density map by counties (Fig. 7). With the possible exception of the Mississippi Delta,

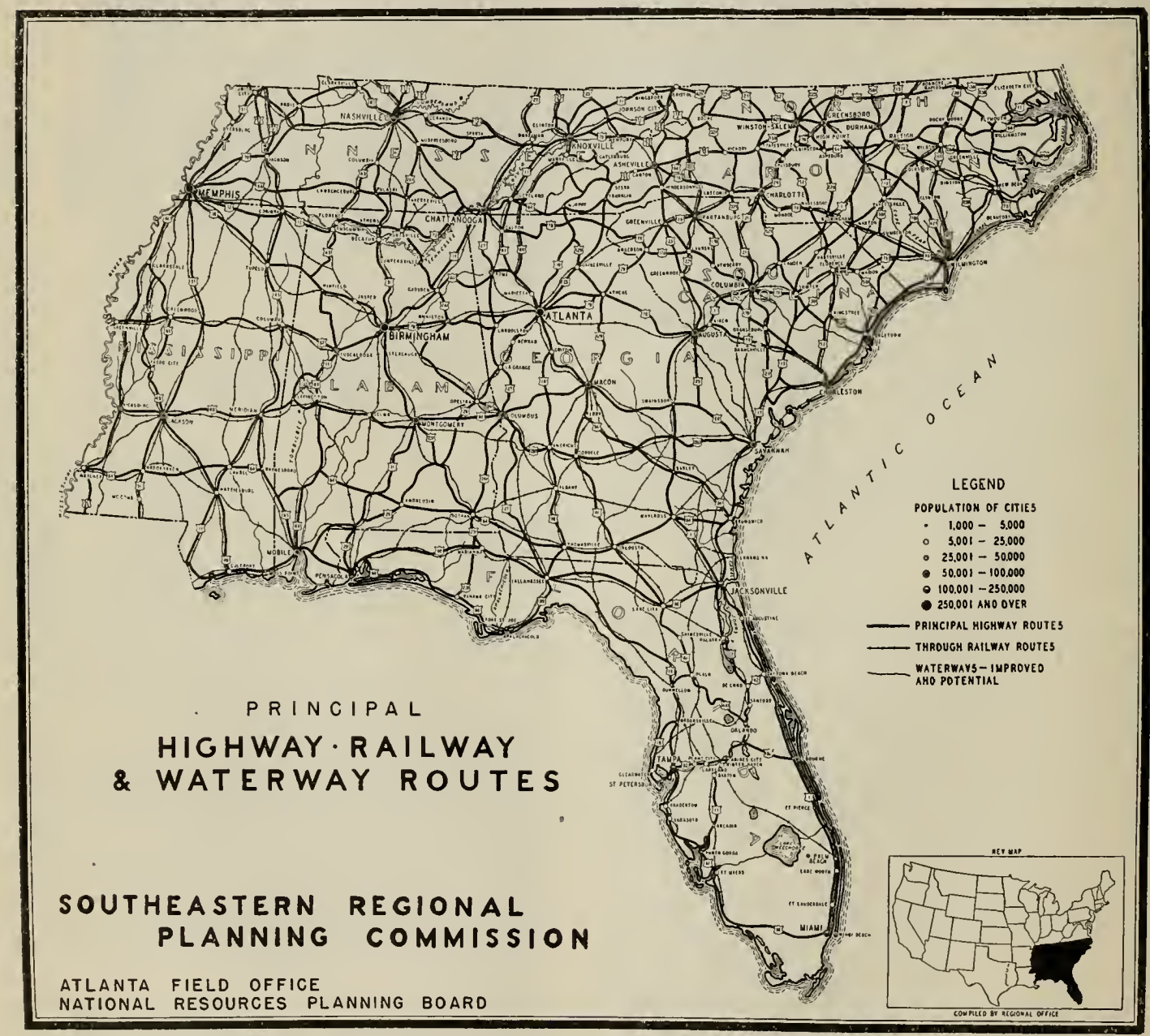


Figure 5

these areas of density are characterized by town and city population, reflecting the industrialization of those particular areas.

While the rate of population increase for the entire region in the last decade was 11.3 percent, this growth has been unequal as between the several States (Fig. 8). Georgia's population has the lowest rate, 7.4 percent, which is almost the same as the national rate. Florida, on the other hand, has grown most rapidly, with an increase of 29.2 percent. Every State, with the exception of Georgia and South Carolina, had smaller rates of growth in the last decade than in the preceding 10-year period.

Fairly wide ranges in degree of population change occur within the States (Fig. 9). A large group of counties in South Carolina, Georgia, and Alabama, at the very center of the old Black Belt, actually lost population between 1930 and 1940. Exhausted soil and the resulting undermining of economic opportunity, as well as changing farm practices, are undoubtedly responsible. Of Georgia's 159 counties, 63 lost population during the decade 1930–40. In South Carolina 11 of the 46 counties and in Alabama 19 of the 67 counties lost population (table III). Areas characterized by large numbers of fairly contiguous counties having rates of population growth of 12.0 percent or more are

Figure 6

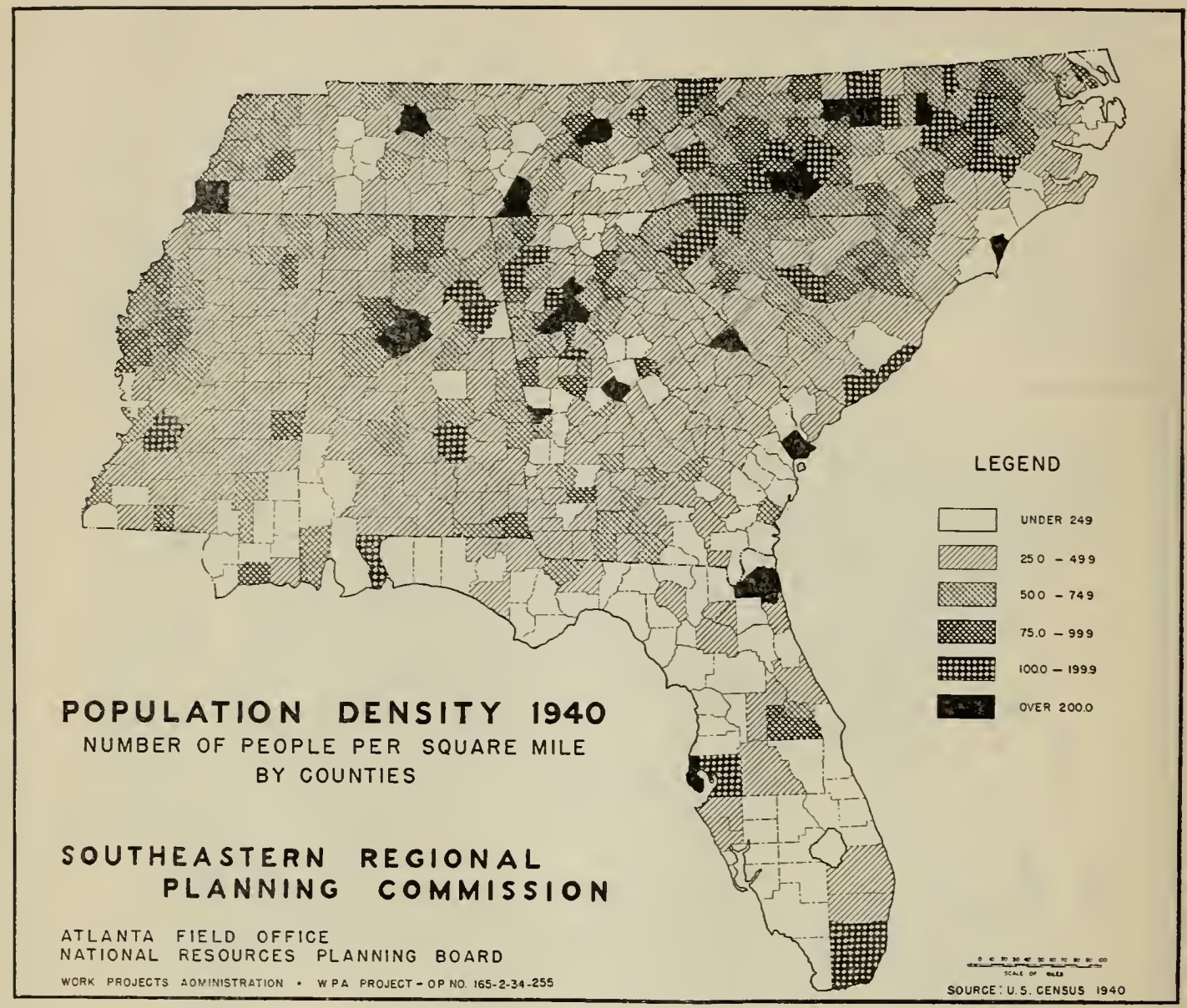


Figure 7

the coastal region of southern Florida, all of the coastal region of South Carolina north of Beaufort County and extending north into the Northern cotton-tobacco region of North Carolina, and counties of eastern Tennessee, western North Carolina, and northwestern Georgia.

Natural Increase[1] *and Migration.*—Population growth and distribution result from natural increase and migration. The curves in Figure 10 demonstrate clearly the relatively higher rate of natural increase (excess of births over deaths) in the Southeastern States as compared to the Nation as a whole; the difference is essentially a matter of higher birth rates in the Southeast, since between 1930 and 1939 death rates in the region have not differed significantly from those in the Nation. There are interesting differences in rates of natural increase among the several States (Fig. 11). Throughout the 10-year period, with the exception of 1931, either Mississippi or North Carolina ranked first in rate of natural increase or shared this position; in 1931 first rank was shared by North Carolina and Alabama. Florida is distinctly atypical with a curve of natural increase that closely resembles that for the Nation. Tennessee also shows relatively low rates

[1] Fertility ratios and size of family as indexes of natural increase have not been considered in this analysis of population. It might be noted that the average size of family, calculated by dividing the number in the population by the number of occupied dwellings, was 4.2 for the Southeastern States in 1940 as compared with a national average of 3.8 and the fertility rate, number of children per 1,000 females 20 to 44 years of age, was 519 compared to 410 for the Nation as a whole. Net reproduction rates are also omitted from the study.

TABLE III.—*Distribution of counties according to rates of change in total population, Southeastern States, 1940*

Rates of increase or decrease (percent)	Regional total	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Tennessee
Total	616	67	67	159	82	100	46	95
−12.0 or more	3	0	2	0	0	0	0	1
−6.0–11.9	32	0	6	20	2	2	2	0
−0.1–5.9	100	19	9	43	8	6	9	6
0.0–5.9	143	16	12	35	24	18	15	23
6.0–11.9	141	16	5	28	23	29	9	31
12.0–17.9	106	12	9	12	17	28	5	23
18.0 and over	91	4	24	21	8	17	6	11

throughout the decade. Unless there is continuous migration, an area with rates of natural increase as high as those in the Southeast may expect a fairly steady increase in population.

With the inclusion of Tennessee, in 1927, in the United States birth registration area, all of the seven Southeastern States became a part of both the official birth and death registration area. Consequently, for the first time birth and death figures for each of the States over a period corresponding fairly closely with a 10-year census period are available. This makes it possible to calculate net migration by the use of excess of births over deaths.[8]

According to table IV, the Southeastern Region had a net immigration of 25,783 for the decade 1930 to 1940. This means that the population of the area grew by 0.2 percent through migration. Thus, of the 11.3 percent gain in population for the region in the 1930–40 decade, 11.1 percent was due to natural increase.

Two States—Florida, the winter resort and recreational center of the Midwest and the East, and Tennessee, a border State which is experiencing an industrial and cultural awakening under the influence of TVA—account for this influx. When the remaining five States are considered separately there is a total net exodus from them of 391,518, or a migratory loss in terms of the 1930 population of 3.1 percent. Still these 5 States showed a population gain of 9.1 percent, resulting entirely from natural increases, a gain greater than that for the Nation and only slightly less than that for the region as a whole.

The region lost 233,581 Negroes through migration during the 10-year period but gained 257,788 whites.

[8] Such calculations are subject to several errors. First, it is not yet possible to make the necessary corrections arising from the fact that the census period from April 1, 1930, to April 1, 1940, does not correspond exactly to the vital-statistics periods from January 1, 1930, to December 31, 1939. When the vital statistics for 1940 are made available by months, it will be possible to make corrections which will make the period covered by vital-statistics reports and the census identical. Second, for only a certain portion of the period 1930 through 1939 are births and deaths allocated to place of residence. This is no serious matter in the case of areas as large as States. Third, there has been criticism by various authorities concerning the completeness with which vital statistics are reported. This criticism is undoubtedly valid but errors arising from using excess births over deaths in calculating migration are probably not greatly different from those involved in other methods of estimating migration.

TABLE IV.—*Net migration for the Southeastern States and percent of gain or loss through migration, 1930–40*

Area	Total		White		Negro		Other races	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Regional total	25,783	0.2	257,788	2.4	−233,581	−4.1	1,576	7.1
Alabama	−141,526	−5.3	−80,329	−4.7	−61,128	−6.5	−69	−12.1
Florida	344,327	23.5	275,405	26.6	68,911	16.0	11	.9
Georgia	−76,310	−2.6	5,205	.3	−81,629	−7.6	114	31.7
Mississippi	−88,399	−4.4	−23,068	−2.3	−65,750	−6.5	419	20.7
North Carolina	−42,186	−1.3	8,761	.4	−51,879	−5.6	932	5.6
South Carolina	−43,097	−2.5	30,272	3.2	−73,588	−9.3	219	21.2
Tennessee	72,974	2.8	41,542	1.9	31,482	6.0	−50	−18.8

Thus the regional gain of 25,783 through migration was due entirely to movement of whites into the area. Every State, except Florida and Tennessee, lost Negroes during the decade. Thus the outward movement of Negroes which has been going on for several decades continued through the last. The region had a net gain through migration of 1,576 persons of "other races." The absolute net gains for "other races" were principally in North Carolina and Mississippi.

Rural and Urban Population.—The Southeastern States are predominantly rural but less so than in either 1920 or 1930. In 1920, 77.9 percent of their population lived in rural areas (table V). By 1940 the proportion had dropped to 68.1. The proportions for the United States at these dates were 48.6 and 43.5, respectively. In 1940 Mississippi was the most rural of the seven States with 80.2 percent of its population

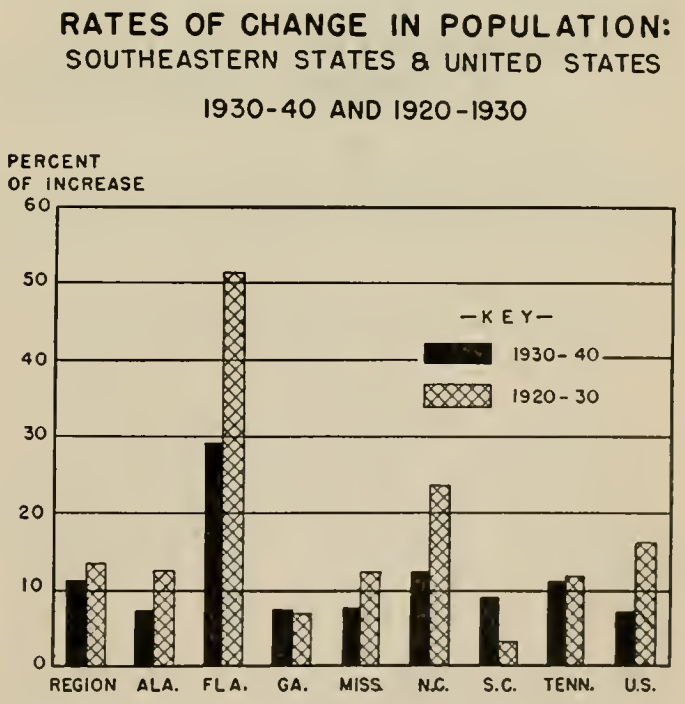


Figure 8

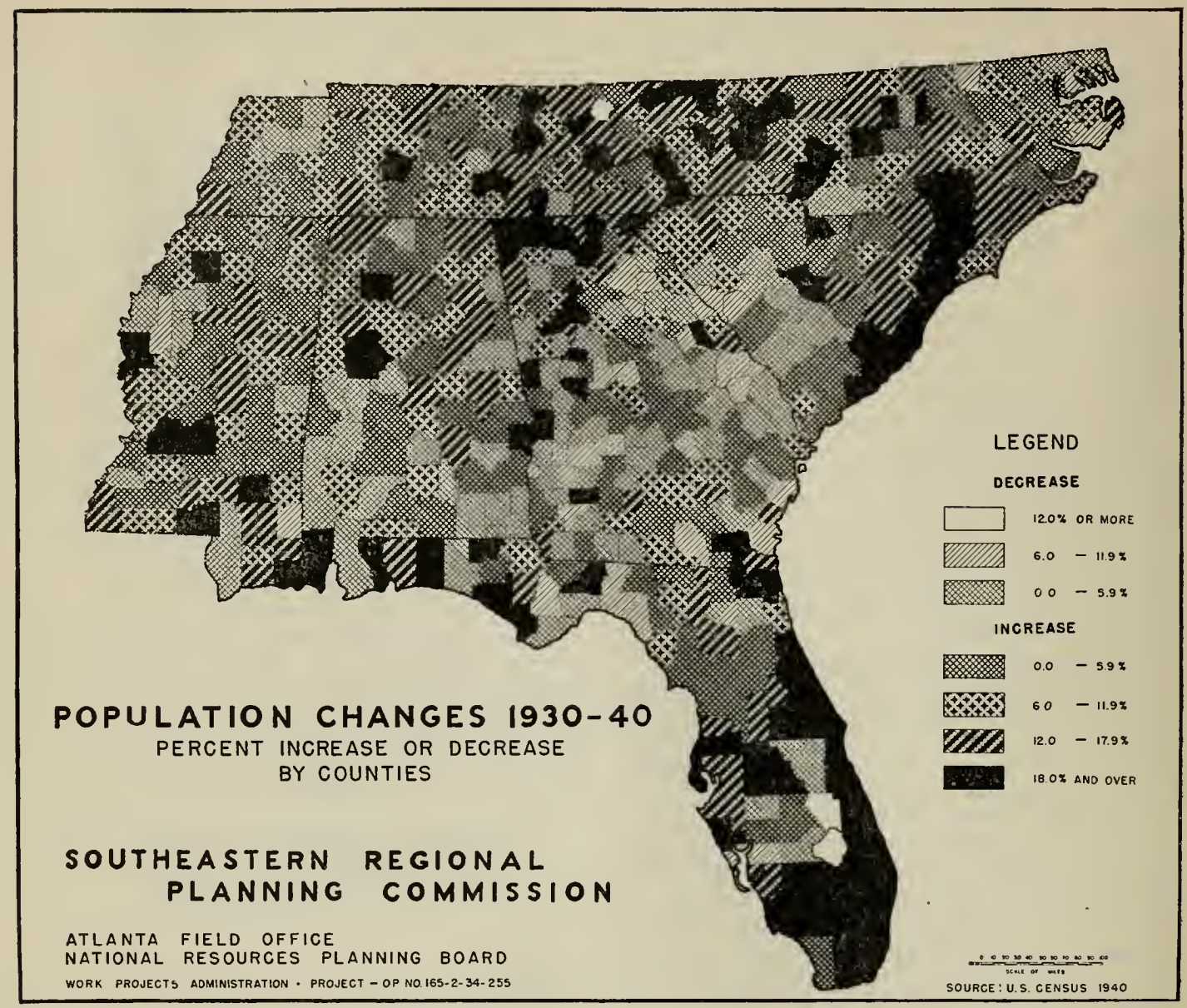


Figure 9

TABLE V.—*Percentage of population urban and rural in Southeastern States and United States, 1940, 1930, and 1920*

Area	Urban			Rural		
	1940	1930	1920	1940	1930	1920
United States	56.5	56.2	51.4	43.5	43.8	48.6
Region	31.9	29.1	22.1	68.1	70.9	77.9
Alabama	30.2	28.1	21.7	69.6	71.9	78.3
Florida	55.1	51.7	36.7	44.9	48.3	63.3
Georgia	34.4	30.8	25.1	65.6	69.2	74.9
Mississippi	19.8	16.9	13.4	80.2	83.1	86.6
North Carolina	27.3	25.5	19.2	72.7	74.5	80.8
South Carolina	24.5	21.3	17.5	75.5	78.7	82.5
Tennessee	35.2	34.3	26.1	64.8	65.8	73.9

so classified. Florida's proportion resembled most closely the national figure, with 44.9 percent. It was the only State of the region which had more than half of its population in urban communities.

The rates of growth of the rural population between 1930 and 1940 in each State and the region were considerably less than the urban rates (table VI). The rate of rural population growth for the region resembles rather closely that for the Nation as a whole. However, despite the comparatively low rate of increase in rural population, the fact that the rate was almost twice as great between 1930 and 1940 as from 1920 to 1930 is significant for it means either that the normal migration demanded by the well-known depressed condition of the farm sector of the rural population is being retarded or that its nonfarm population has been absorbing con-

siderable numbers. Three States in the area showed actual losses of rural population between 1920 and 1930 but no State showed a loss between 1930 and 1940, and only two States, Mississippi and North Carolina, had

TABLE VI.—*Percent of change in the rural population of the Southeastern States and United States, 1930–40 and 1920–30*

Area	1930–40	1920–30	Area	1930–40	1920–30
United States	6.4	4.7	Georgia	1.8	−7.1
			Mississippi	4.8	7.8
Region	6.9	3.4	North Carolina	10.0	14.1
			South Carolina	4.8	−1.6
Alabama	3.9	3.4	Tennessee	9.8	−.4
Florida	20.2	15.2			

smaller rates of growth in the period 1930 to 1940 than in the preceding decade. Insofar as the region's urban rates of growth reflect these rural rates, they emphasize the slowing down in outward flow of the rural population to cities in the region. The rate of urban population growth for the entire region during the 1930's was less than half the rate during the 1920's (table VII). With the exception of Florida, no State had an urban rate of growth in the decade 1930 to 1940 that was larger than its rate for the preceding decade. And yet the growth of the region's urban population, while slowing down considerably compared to the growth in the twenties, was still proceeding apace with a rate almost three times as great as that for the urban population of the Nation.

TABLE VII.—*Percent of change in the urban population of the Southeastern States and United States, 1930–40 and 1920–30*

Area	1930–40	1920–30	Area	1930–40	1920–30
United States	7.9	27.0	Georgia	19.9	23.0
			Mississippi	27.8	41.1
Region	22.0	49.2	North Carolina	20.3	65.2
			South Carolina	25.6	26.2
Alabama	15.0	46.1	Tennessee	14.6	46.7
Florida	37.6	20.2			

Rural Farm and Rural Nonfarm Population.—In 1940 the rural farm population of the Southeastern States constituted 44.7 percent of the total population, a proportion almost twice as great as that for the Nation (table VIII). Thus the region still maintained its distinctly agrarian character. However, the past two decades have witnessed a distinct decline in the proportion of the total population which is rural farm, from 57.6 percent in 1920 to 44.7 in 1940.

The region's rural nonfarm population constituted 23.4 percent of the total population in 1940. This proportion is slightly above the national figure and, like the national proportion, except for a slight rise, has not varied greatly since 1920.

In 1940 Mississippi had the largest percentage of its total population (64.1) classified as rural farm while

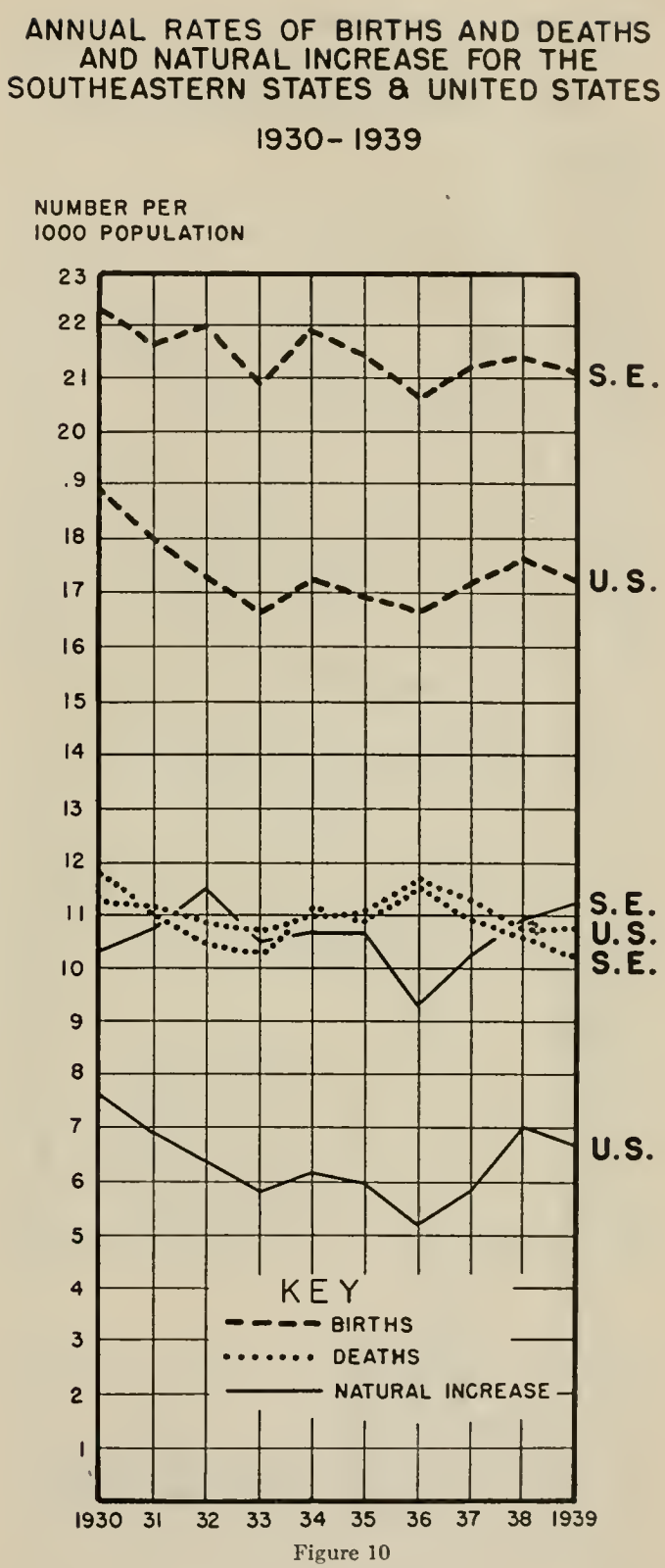


Figure 10

Florida had the smallest percentage (15.9). Three of the seven States have had slight but continuous increases in the past 20 years in the proportion of their

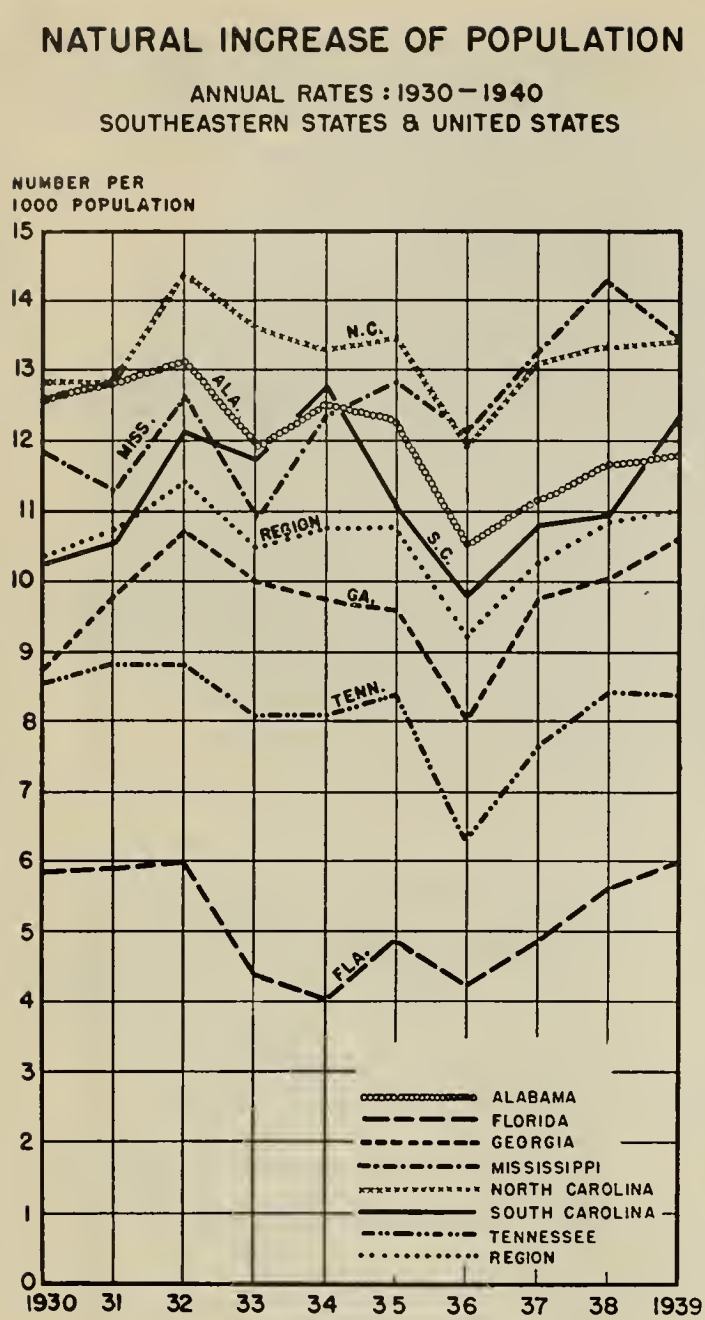


Figure 11

populations classified as rural nonfarm. Mississippi had the same proportion in 1920 and 1930 but a slight increase in 1940. Only Florida has had a reverse trend, while Alabama and Tennessee have been irregular, though the 1940 proportion in both was larger than the 1920. In 1940 Mississippi had the smallest percentage (16.1) of its population classified as rural nonfarm and Florida had the largest percentage (29.0).

The rural farm population of the region increased by 134,965, or only 1.7 percent, between 1930 and 1940 (table IX). However, this increase becomes more significant if it is placed alongside of the 3.5 percent loss in rural farm population which occurred in the preceding decade. Any increase of farm population in a region where there is extensive soil exhaustion and in a period when farm markets have been disorganized is almost certain to present a serious problem. The 3.5 percent loss in farm population undoubtedly represented an adjustment of population to economic conditions. If it did, even the 1.7 percent gain in the past decade becomes a matter of concern.

TABLE VIII.—*Percentage of total population rural farm and nonfarm in the Southeastern States and United States, 1940, 1930, and 1920*

Area	Rural farm			Rural nonfarm		
	1940	1930	1920	1940	1930	1920
United States	22.9	24.6	29.7	20.5	19.3	19.0
Region	44.7	49.1	57.6	23.4	21.9	20.2
Alabama	47.3	50.5	56.8	22.5	21.4	21.5
Florida	15.9	18.7	28.8	29.0	29.5	34.4
Georgia	43.6	48.6	58.0	22.0	20.6	16.8
Mississippi	64.1	67.7	70.9	16.1	15.7	15.7
North Carolina	46.4	50.7	58.6	26.3	24.1	22.2
South Carolina	48.1	48.6	63.7	27.4	20.6	18.8
Tennessee	43.6	50.5	54.3	21.1	21.4	19.6

TABLE IX.—*Percent of change in rural farm and rural nonfarm population in the Southeastern States and United States, 1930–40 and 1920–30*

Area	Rural farm		Rural nonfarm	
	1930–40	1920–30	1930–40	1920–30
United States	0.3	−3.8	14.2	18.0
Region	1.7	−3.5	18.5	23.1
Alabama	.2	.1	12.9	12.1
Florida	9.4	−1.6	27.0	30.1
Georgia	−3.5	−15.9	14.5	23.0
Mississippi	2.9	7.2	13.1	10.1
North Carolina	3.7	6.5	23.3	32.2
South Carolina	−.1	−14.8	14.7	43.0
Tennessee	4.9	−4.4	21.6	10.8

The rural nonfarm population of the region showed a gain of 18.5 percent between 1930 and 1940 as compared to a gain of 14.2 percent for the country as a whole. It has been noted previously that the whole rural population of the region grew 6.9 percent during the last decade, and in this connection reference was made to a tendency toward stoppage of a normal outward flow of farm population or else a considerable growth in the nonfarm sector of the rural population. The nonfarm population has increased at a considerably higher rate than has the total rural population. In fact, between 1930 and 1940, 83.3 percent of the rural population increase was contributed by growth of the nonfarm portion of the rural population. Reflected here are the trends toward suburbanization, string de-

velopment in town growth, and the combination of industrial employment with rural residence.

In the 1930 to 1940 period, of the seven States, Florida experienced the largest percent of increase (9.4) in rural farm population while Georgia showed the greatest loss, 3.5 percent. Florida also had the largest percent (27.0) of gain between 1930 and 1940 in rural nonfarm population and Mississippi the smallest, 13.1 percent.

Population of Incorporated Places.—In view of the marked rate of growth of urban population in the region in the past two decades, the population of incorporated places deserves special attention. Furthermore, while there are exceptions, the growth of villages, towns, and cities, can in many situations be taken as an index of industrialization.

There were 2,393 incorporated places with a total of 7,208,815 inhabitants in the Southeastern States in 1940 (table X). Many of these incorporated places are small; 41.2 percent of the total number in the region had populations under 500. Georgia had the largest number of such places and Tennessee the smallest. Many of these smaller places are agricultural trade centers. The absence of large cities is especially marked in Mississippi. While it is not alone in having only one city in the 25,000–49,999 class, it is the only State having only one city in the 50,000-and-over group.

TABLE X.—*Number of incorporated places according to size in the Southeastern States, 1940*

Size of place	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Tennessee	Total
All places	279	273	590	295	487	248	221	2,393
0–499	87	88	308	117	212	107	67	986
500–999	70	56	111	72	102	38	49	499
1,000–1,499	32	27	44	32	44	31	26	236
1,500–1,999	16	23	34	19	36	10	17	155
2,000–2,499	14	9	16	7	16	12	5	79
2,500–4,999	30	35	39	25	31	26	30	216
5,000–9,999	16	15	19	11	19	14	15	109
10,000–24,999	8	12	13	10	17	6	7	73
25,000–49,999	3	4	1	1	4	2	1	16
50,000 and over	3	4	5	1	5	2	4	24

In 1940, 38.3 percent of the total incorporated population of the region lived in cities of 50,000 and over (Fig. 12). In Alabama, Florida, Georgia, and Tennessee the proportion of the total incorporated population living in cities of 50,000 or more was above 40.0 percent, being as high as 60.8 percent in Tennessee. In over-all terms, this would suggest that industrialization and its accompanying town and city development have followed a pattern of concentration of people in a few large centers rather than in many industrial towns with populations ranging from 5,000 to 10,000.

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In order accurately to indicate the growth of incorporated places, communities were classified (Fig. 13) according to size at the beginning of the decade 1920–30 and again for the decade 1930–40, and rates of change in their populations were calculated for each decade.[10] During the decade 1930–40 incorporated places in the region grew at a rate (16.5 percent) which was slightly less than half the rate (34.6 percent) for 1920–30. For every class-size of place, with the exception of the 0–499 group, the rates of growth were noticeably lower between 1930 and 1940 than between 1920 and 1930. The largest differences in rates of growth occurred for cities in the classes 5,000–9,999, 10,000–24,999, and 25,000–49,999. In both decades, Florida's incorporated places showed the highest percent of population

[10] The only accurate method for calculating the growth of incorporated places is to follow the same places for the particular time period under consideration. To do this it is necessary to eliminate all places for which data are not available at the beginning and end of the period and, when possible, to add at the beginning of the period the population of annexed places to the population of the places to which the annexations are made. This treatment of annexed places is possible for only incorporated places annexed to other incorporated places. It is practically impossible to follow annexations which involve shifts of incorporated boundaries other than in instances where another incorporated place is annexed.

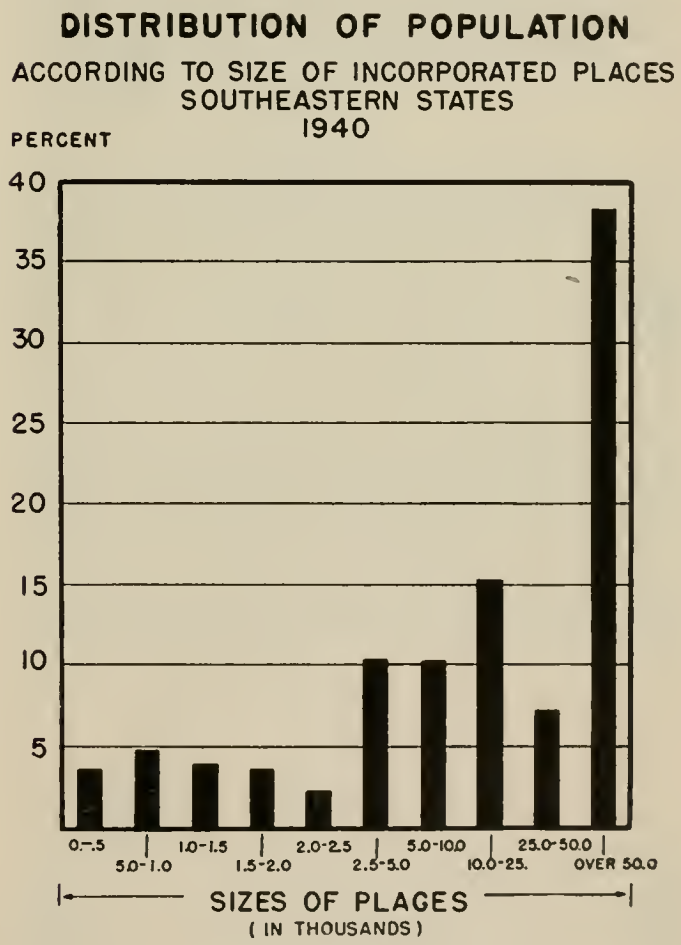

Figure 12

growth, though even here the rate declined from 77.4 percent in the 1920–30 period to 31.6 in the 1930–40 period. Incorporated places in Alabama showed the smallest percent of growth between 1930–40, followed closely by Tennessee. Georgia's incorporated population grew by the smallest percent between 1920–30.

Composition of the Population

Race.—There were 5,961,191 Negroes in the seven Southeastern States in 1940 and 29,434 individuals classified as other nonwhite races. The Negro group constituted 32.4 percent of the total population of the area and other nonwhite races only 0.2 percent. Corresponding national figures were 9.8 percent for Negroes and 0.4 percent for other nonwhite races. Mississippi had the largest percentage (49.2) of Negroes in its population and Tennessee the smallest (17.4). All seven States showed between 1930 and 1940 slight declines in the Negro proportions of their populations (table XI).

TABLE XI.—*Percent Negro population, 1930 and 1940, and percentages of change in white and Negro populations of the Southeastern States and the United States, 1930–40*

Area	Percentage of population Negro		Percentage of change, 1930–40	
	1940	1930	White	Negro
United States	9.8	9.7	8.6	8.2
Region	32.4	34.1	14.2	5.6
Alabama	34.7	35.7	8.7	4.1
Florida	27.1	29.4	33.5	19.1
Georgia	34.7	36.8	11.0	1.3
Mississippi	49.2	50.2	10.8	6.4
North Carolina	27.5	29.0	14.9	6.8
South Carolina	42.9	45.6	14.9	2.6
Tennessee	17.4	18.3	12.5	6.5

The percentage gain for the 1930–40 decade in Negro population in each State, with the possible exception of Mississippi, was considerably less than that of the white population. In Georgia and South Carolina the difference was exceptionally large. In the entire region the white rate of gain was slightly better than two and a half times that for the Negroes. In the Nation as a whole, however, the rates of gain for whites and Negroes were almost the same, 8.6 and 8.2, respectively (Fig. 14).

TABLE XII.—*Percent of change in urban, rural farm, and rural nonfarm white and Negro populations of the Southeastern States, 1930–40*

Area	Percent of change, 1930–40					
	White			Negro		
	Urban	Rural nonfarm	Rural farm	Urban	Rural nonfarm	Rural farm
Region	21.5	24.2	4.3	23.1	4.2	−2.9
Alabama	13.5	16.3	2.5	17.7	5.4	−3.8
Florida	38.1	40.2	11.1	36.5	1.3	4.9
Georgia	19.9	22.1	−.3	19.9	−.9	−8.5
Mississippi	24.4	15.7	4.6	32.9	8.4	1.5
North Carolina	19.7	25.6	6.6	21.6	15.4	−3.5
South Carolina	27.1	24.0	1.5	23.2	−2.8	−1.4
Tennessee	13.5	24.4	6.9	17.6	1.9	7.0

In 1940, Negroes constituted 32.6 percent of the region's urban population, 25.0 percent of its rural nonfarm and 36.1 percent of its rural farm population. Between 1930 and 1940 the Negro urban population increased 23.1 percent compared to 4.2 percent increase in the rural nonfarm and a loss of 2.9 percent in the rural farm sectors (table XII). In four States the Negro rural farm population declined and in two States the Negro rural nonfarm population declined. The urban growth of Negroes cannot be explained on the basis of natural increase. It is obvious that not only is the rural Negro leaving the region in considerable numbers, he is also migrating to the region's urban centers.

The white population of the region had its largest percent (24.2) of increase between 1930 and 1940 in the rural nonfarm classification. The white urban population increased during the decade by 21.5 percent and the rural farm whites increased by 4.3 percent. Thus, the small percent of rural farm increase has been entirely in the white population. In five States the white nonfarm population showed the highest rates of

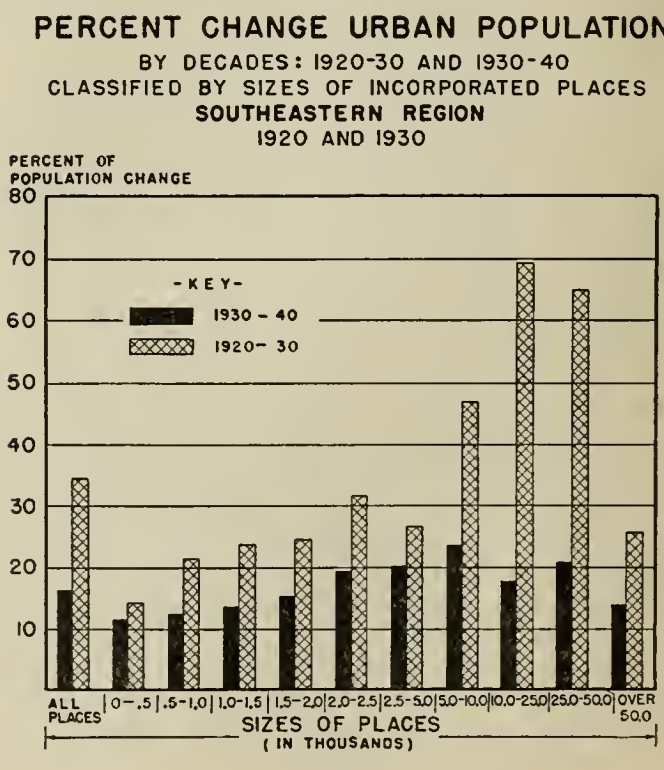

Figure 13

increase, but in Mississippi and South Carolina first position was held by the white urban group. Georgia's white rural farm population showed a loss during the decade, but the other States had a small increase, which was greatest in Florida, amounting to 11.1 percent.

Table XIII shows that 32.1 percent of the region's total Negro population was urban in 1940 compared to 27.5 in 1930. The Negro rural farm population declined from 54.2 percent in 1930 to 49.9 in 1940. There was only a slight decline between 1930 and 1940 in the Negro population classified as rural nonfarm. Every State in the region had a larger percentage of its Negro population in urban places in 1940 than in 1930, and a smaller percentage classified as rural farm in 1940 than in 1930. Only Florida showed a considerable decline in the percentage of its Negro population classified as rural nonfarm, 33.8 in 1930 and 28.8 in 1940. In the latter year, Florida's urban and rural nonfarm and rural farm populations differed most from those classes of the region in percentage of Negroes. Alabama's urban, Georgia's rural nonfarm, and North Carolina's rural farm populations most closely resembled the region's population groupings in percentage of Negroes.

According to table XIV, the urban proportion of the total white population increased slightly in each State of the region between 1930 and 1940. Likewise the proportions classified as rural nonfarm increased slightly during the decade, but the rural farm population declined.

Age Composition.—Compared to the Nation as a whole, the Southeastern States have relatively high ratios of persons in the so-called dependent ages (persons under 20 or 65 and over) to those of productive age (20 to 64) (table XV).

In 1940 for each 100 persons of productive age (20 to 64) in the region there were 88.0 persons of dependent age (those under 20 and those 65 and over); in the United States as a whole this ratio per 100 was 70.2. This extreme difference is due entirely to the number

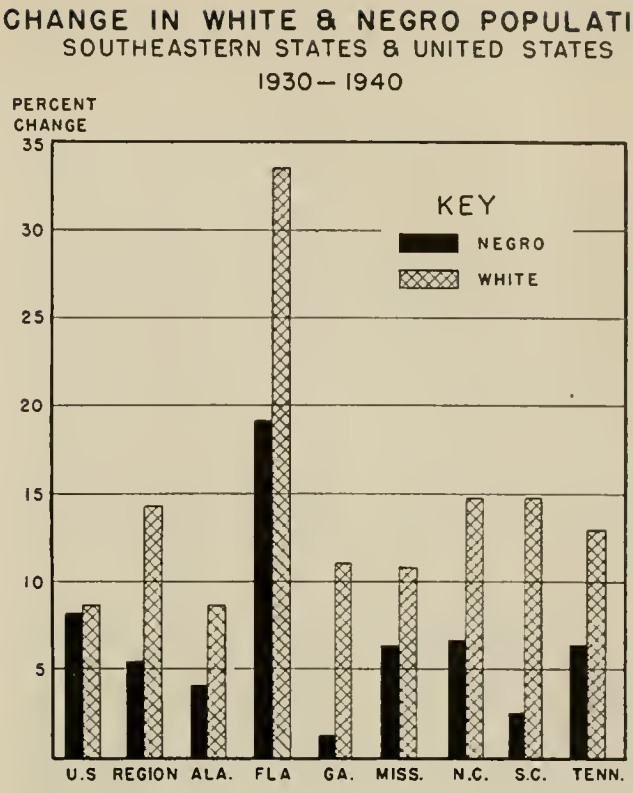

Figure 14

of persons under 20. In fact the ratio of those 65 and over to each 100 persons 20 to 64 was slightly lower for the region (9.7) than that for the United States (11.7). The percent of decline for the under-20 ratio between 1930 and 1940 was slightly greater for the region than for the Nation as a whole.

There was, in 1940, a markedly disproportionate number of young dependents in relation to those of supporting age in the region's rural farm population as compared to this class of the Nation's population (table XV). While the number of all dependents as related to the productive age group in every class of the region's, as well as the Nation's, population declined between 1930 and 1940, the regional percentages

TABLE XIII.—*Percentage distribution of total Negro population according to urban, rural nonfarm, and rural farm classifications, 1940 and 1930*

Area	Percentage distribution of Negro population					
	Urban		Rural nonfarm		Rural farm	
	1940	1930	1940	1930	1940	1930
Region	32.1	27.5	18.0	18.3	49.9	54.2
Alabama	32.1	28.4	19.3	19.0	48.6	52.6
Florida	55.8	48.7	28.8	33.8	15.4	17.5
Georgia	35.0	29.6	18.1	18.5	46.9	51.9
Mississippi	16.6	13.3	11.4	11.2	72.0	75.5
North Carolina	30.5	26.8	20.6	19.0	48.9	54.2
South Carolina	20.9	17.4	18.8	19.8	60.3	62.7
Tennessee	55.5	50.3	12.6	13.2	31.9	36.5

TABLE XIV.—*Percentage distribution of total white population according to urban, rural nonfarm, and rural farm classifications, 1940 and 1930*

Area	Percentage distribution of white population					
	Urban		Rural nonfarm		Rural farm	
	1940	1930	1940	1930	1940	1930
Region	31.9	29.9	25.9	23.8	42.2	46.2
Alabama	29.2	28.0	24.3	22.7	46.5	49.3
Florida	54.9	53.0	29.1	27.7	16.0	19.3
Georgia	34.0	31.5	24.0	21.8	42.0	46.7
Mississippi	23.0	20.5	20.6	19.7	56.4	59.8
North Carolina	26.3	25.2	28.7	26.3	45.0	48.5
South Carolina	27.3	24.6	33.0	31.4	38.8	44.0
Tennessee	30.9	30.7	23.0	20.8	46.1	48.5

TABLE XV.—*Dependency ratios for the total, urban, rural farm, and rural nonfarm populations of the region and the United States, 1940 and 1930*

Area	Number of persons of dependent age per 100 persons of productive age (20–64)											
	Total			Urban			Rural farm			Rural nonfarm		
	Under 20	65 and over	Under 20 plus 65 and over	Under 20	65 and over	Under 20 plus 65 and over	Under 20	65 and over	Under 20 plus 65 and over	Under 20	65 and over	Under 20 plus 65 and over
1940												
Region	78.3	9.7	88.0	53.9	8.6	62.5	103.3	11.1	114.3	75.2	9.2	84.1
United States	58.6	11.7	70.2	47.8	10.8	58.6	84.2	12.9	97.2	65.9	13.0	78.9
1930												
Region	93.6	8.0	101.6	64.1	6.5	70.6	120.7	9.2	129.8	86.9	7.8	94.7
United States	69.6	9.7	79.3	57.3	8.5	65.8	99.8	10.8	110.6	75.8	12.4	88.2

TABLE XVI.—*Dependency ratios of the total, urban, rural farm, and rural nonfarm population in the Southeastern States and the United States, 1940*

	Number of persons of dependent age per 100 persons of productive age (20–64)											
	Total			Urban			Rural farm			Rural nonfarm		
	Under 20	65 and over	Under 20 plus 65 and over	Under 20	65 and over	Under 20 plus 65 and over	Under 20	65 and over	Under 20 plus 65 and over	Under 20	65 and over	Under 20 plus 65 and over
United States	58.6	11.7	70.2	47.8	10.8	58.6	84.2	12.9	97.2	65.9	13.0	78.9
Region	78.3	9.7	88.0	53.9	8.6	62.5	103.3	11.1	114.3	75.2	9.2	84.1
Alabama	82.2	9.2	91.4	56.4	7.6	64.0	106.3	11.3	117.6	78.1	8.7	86.8
Florida	57.6	11.4	69.3	45.8	11.4	57.2	90.9	13.7	104.6	67.1	11.4	78.4
Georgia	76.6	9.5	86.0	54.8	7.9	62.7	103.6	11.1	114.7	69.2	9.3	78.5
Mississippi	83.7	10.2	93.9	52.6	8.9	61.5	101.4	10.7	112.1	66.6	10.7	77.2
North Carolina	84.7	8.5	93.2	59.3	6.8	66.1	107.3	10.3	117.6	80.1	7.6	87.8
South Carolina	90.7	8.5	99.2	61.1	7.4	68.5	117.1	10.1	127.2	81.7	7.4	89.1
Tennessee	72.5	10.8	83.3	51.9	9.1	61.0	90.9	12.7	103.6	77.5	10.4	87.9

of decrease were not significantly different from those of the Nation. For all classes of the population (urban, rural nonfarm, and rural farm), the ratios of young dependents to the productive age group were closer together, as between the region and the Nation, in 1940 than in 1930. Even though for the rural farm population the difference was reduced noticeably, it was still considerably larger than for any other class of the population. Thus it appears that, in terms of this broad comparison, the age composition of the Southeast is gradually assuming a structure resembling that for the Nation. In general, it may be pointed out that there is an unusual excessive proportion of the young ages in the population of the Southeastern States, especially in its rural farm population. This excess of young people creates serious problems. It increases the burden of education in a region whose income and per capita wealth is low. It creates excessive demands for public health services, child-caring agencies, and vocational training. With emigration apparently declining, the problem of employment for this oncoming generation of workers seriously increases.

Analysis of dependency ratios for the total population of each of the States shows that, in 1940, Florida had the lowest ratio (57.6) for young dependents and South Carolina the highest (90.7) (table XVI). Florida had the highest ratio (11.4) for the aged dependents, with North Carolina and South Carolina each having the lowest (8.5). In each of the States in the region the ratios for those under 20 to the productive age group were higher in the rural farm population than in either the urban or the rural nonfarm. The ratios for this group in all the States were smallest for the urban population, with the nonfarm ratios occupying an intermediate position. For total, urban, and rural farm populations Florida had the lowest ratios for the under-20 age group and it was sixth among the States for this ratio for rural nonfarm population. On the other hand, for total population as well as all classes thereof, Florida had the highest ratios for the 65-and-over group. South Carolina had in each class of its population the highest ratio for young dependents and the lowest for the old-age groups for rural farm and nonfarm populations while it ranked sixth among the seven States for this ratio for urban population and tied for lowest rank with North Carolina for the ratio when total population is considered. Thus South Carolina is the State where youth abound and Florida reflects, of course, the migration from many sections of the country of persons of retirement age.

THE REGION IN A PERIOD OF WAR

Possessing a rich endowment of material resources and a population whose characteristics have given them a distinctive homogeneity in the national scene, the Southeastern States, as the core of the larger South, have had a regional economic history both colorful and tragic. After two centuries of colonial status under the Spanish, the French, and the British, the colonies entered the union of American States, acquiring statehood between 1788 and 1845. The colonial period had seen them occupied with the provision of rice and indigo, tobacco and furs. The great westward and inland migration of the early nineteenth century opened up the vast interior for agrarian development, and the rush toward cotton began, which, by 1850, had created conflicting economic interests between agrarian South and industrial North. The Southeastern States, together with those of the North, had freed themselves from Europe politically, but the former had not been freed economically. Producing two great export staples, they could thrive only on free trade with the British and other European powers. The Northern States provided a growing but inadequate market and a growing but inadequate supply of manufactured goods for anything approaching a balanced, interchange economy within the United States. The industrialism of the North required tariff protection against the competition of European manufacturers. The agrarianism of the South required a free flow of European manufactures into its ports in payment for its exports. These factors provided the basis, if not the full array of causes, for the armed conflict which followed and the decision for Union sealed in blood at Appomattox.

Reconstruction followed war, consolidating for the States of the South, not only the human and material losses of the conflict, but adding others and crystallizing the social and personal feelings which in the mind of the region must necessarily have become identified with the conflict and the sacrifices it exacted.

But the rush to cotton had not spent itself. A growing nation and stability of international trade provided the market stimulus, despite a national tariff policy disadvantageous to it. Cotton became king. The ravages of the boll weevil in the early part of the present century were at least partially offset by the continued Southward migration of the textile industry and the employment opportunities it offered directly and indirectly. From the time of Whitney and the invention of the cotton gin in 1793 to the opening of the first World War, there was little to discourage a preoccupation with farming in the Southeast—with single cash-crop farming for the export and domestic markets.

This limited economic interest could not produce general prosperity. Wide disparities in economic status were characteristic not only between white and colored, but between whites. The disorganization of world trade following the first World War and during the 1920's, and the development of cotton culture abroad, removed a large part of the substructure upon which rested such agrarian well-being as there was. Increasingly during the 1920's, the region made vigorous and partially successful efforts to find an economic release in industrial development. The world-wide depression of the early 1930's was the undoing of such progress as had been made and aggravated all of the economic ills from which the region suffered.

Since 1935, through programs of surplus removal, agricultural diversification and industrial development, the region has advanced further toward a more balanced economy. Such gains as have been made must be credited with considerable importance, for the need for them has been very great. It is upon the basic economy of the Southeast as rehabilitated during the late 1930's that the present World War has had its impact. It is appropriate to take a more precise measurement of some of its major characteristics before considering the impact of war upon it.

Dominant Pre-War Characteristics of the Regional Economy

The impact of defense and war activities upon the regional economy and the implication of these activities to long-range post-war readjustment can best be judged in terms of the period immediately preceding the outbreak of war. Specific divisions of the regional economy are analyzed intensively with reference to long-range regional development in Part II of this report. It will be helpful at this point, however, to summarize the essential features of the economy which have felt the impact of war.

Agriculture

The Southeast in 1940 had approximately 18½ million inhabitants, or one-seventh of the national population, distributed with varying degrees of density over more than one-tenth of the Nation's land area. (See Fig. 1.)

TABLE I.—*Summary of agricultural changes in the Southeast, 1930–40*

	1940	1930	Percentage change in 10 years
	Thousands	*Thousands*	
Number of farms	1,465	1,568	−6.6
Land in farms (acres)	118,898	108,444	9.6
Average size farm (acres) [1]	81.2	69.2	14.0
Crop land harvested (acres)	41,153	39,555	4.0
Crop land harvested per farm (acres) [1]	28.1	25.2	11.6
Number farm owners	691	631	9.5
Number farm tenants	774	937	−17.4
Number white owners	593	532	11.5
Number white tenants	421	472	−10.8
Number Negro owners	98	99	−0.9
Number Negro tenants	353	465	−24.1
Average value of farms [1]	$2,341	$2,577	−9.2
Number of cattle	5,457	4,171	30.8
Milk produced (gallons)	836,658	648,424	29.0
Number of hogs and pigs	5,394	3,715	45.2
Average in cotton	8,858	15,765	−43.8
Bales of cotton raised	4,967	6,671	−25.6

Source: *U. S. Census of Agriculture*, 1940.

[1] Figures for these items are actual numbers.

Mild climate, productive soils, and ample rainfall have caused the Southeast since colonial times to look to cash-crop agriculture as its first source of livelihood.[1] The result has been the depletion of its soil and the failure to acquire its share of the business and industrial life of the Nation. Beginning about 1930 encouraging shifts began to take place, particularly in agriculture. Between 1930 and 1940, the number of farms had decreased 6.6 percent, the average acreage per farm increased, the total number of farmers decreased slightly, the number of owners increased nearly 10 percent, and the number of tenants decreased 17.4 percent.[2] (See table I.)

While these changes reflected significant improvements in the region's economy, the fact remained that in 1940 nearly half the population of the region was still rural farm, with 64 percent of these farmers receiving most of their income from cash crops, mainly cotton and tobacco, which were sold, sometimes to the extent of a third of the Nation's annual production, in the export market.[3]

Since the Nation no longer dominated the world production of tobacco and cotton, prices of these commodities were set, not in the regional or national market, but in world markets. This resulted in the accumulation of large annual carry-overs, unsold in order to maintain prices here. With so many of its farms devoted to single cash-crop agriculture, the region continued to be a heavy importer of foodstuffs. Large volumes of milk, eggs, cheese, butter, fruits, vegetables, fresh meat, were being brought into the Southeast from considerable distances, accumulating freight charges in the process, and often deteriorating in quality.

[1] Changes in Southeastern agriculture from 1930 to 1940 and its status at the end of the decade are analyzed in detail in the section, "Agricultural Developments," Part II of this report.

[2] *Agricultural Statistics, 1940*, U. S. Department of Agriculture, 1940, p. 173.

[3] *I bid.*

TABLE II.—*Business and industry, national and regional, March 1938* [1]

Area	Estimated population 1938 [2]	Total number business establishments	Number per 1,000 population	Total number wage earners	Wage earners percent of population	Total amount wages paid [3]	Wages per capita of population
United States	129,823,202	2,103,387	16.5	22,373,417	17.2	$6,375,932,411	$49.11
Region	18,052,000	171,094	9.5	2,036,294	11.3	360,877,776	19.99
Percent of United States in region	14.7	8.1	------	9.1	------	5.7	-------
Alabama	2,798,000	21,421	7.6	252,829	12.1	49,349,717	17.64
Florida	1,789,000	29,249	16.3	290,392	16.2	47,564,456	26.59
Georgia	3,083,000	31,048	10.0	384,796	12.5	68,796,311	22.31
Mississippi	2,152,000	12,659	5.9	124,443	5.8	16,003,590	7.45
North Carolina	3,494,000	31,006	8.9	450,621	12.9	83,142,159	23.79
South Carolina	1,877,000	16,476	8.8	215,281	11.5	34,686,072	18.48
Tennessee	2,859,000	29,237	0.2	317,932	11.1	61,336,470	21.45

[1] Data are computed from compilations by the Old Age and Survivors' Insurance Division, Social Security Board, and U. S. Census reports on Vital Statistics.

[2] *"Special Report—Vital Statistics," U. S. Bureau of Census.*

[3] Table 6, Alabama Old Age and Survivors' Insurance for last day or last pay-roll date of March 1938 (unpublished).

Business and Industry

The total number of workers employed outside of agriculture during 1939 in the Southeast represented only 11.3 percent of the total population while in the Nation they represented 17.2 percent.[4] (See table II.)

Industrial and business wages paid per capita in the region amounted to slightly over one-half the national average. The number of business establishments was proportionately low, 9.5 business establishments per 1,000 persons in the region in 1938, as against 16.6 per 1,000 persons in the Nation.

Of the 2 million employees in business and industry in the region prior to the defense effort, approximately 1 million were employed in manufacturing. Relative to the Nation, the region made great strides in its manufacturing during the period 1919–1939, but the income from wages in manufacturing over the same period failed to keep up with the region's growth in population. There was a 26 percent increase in population during that 20 years and a 40 percent increase in employment, but only a 12 percent increase in nonagricultural wage payments.

Internal characteristics of the region's manufacturing industries, in the period prior to defense, were prevailingly as follows: They employed relatively high proportions of unskilled or semiskilled labor; produced principally the semifinished types of goods which became "raw material" for factories elsewhere; and produced a relatively low "value added" in pro-

[4] The nonagricultural segments of the regional economy are intensively treated in the section, "Business and Industry," Part II of this report.

portion to either wages or materials; characteristics which have been summed up in the statement that the region's manufacturing is of a "colonial" type. An obsolete and artificial freight rate structure, together with a considerable degree of absentee ownership of industries, had tended to "freeze" the manufacturing picture into a semideveloped pattern. As a central result, with 11.4 percent of the Nation's average employment, only 7.1 percent of the Nation's "value added by manufacture" was produced in the Southeast in 1939.

With this restricted industrial development, plus low per capita income from agriculture, it is not surprising to find a low per capita income throughout the region generally, $288 in the region in 1939 as compared with a national average of $537. Conventional indices such as bank deposits, assets of building and loan associations, and, to a lesser extent, life insurance, revealed that at the same time the Southeast had accumulated considerable stocks of capital.[5] These and less visible stores of capital, though presumably not adequate for the building of a great industrial empire, probably existed in sufficient quantity for an initial industrial expansion. However, by the very nature of the institutions in which the bulk of such capital was held, it was not available for the kind of "venture" or promotional financing necessary to start needed new industries.

These observations mean, essentially, that the region possesses potentialities for a much more prosperous development than it has attained. It was this realization which stimulated the vigorous organized efforts that produced the encouraging shifts made from 1930 to 1940. Representative of these efforts are the Southern Governors' Conference, the programs of the Agricultural Extension Divisions of the Land Grant Colleges and their collaborators in the planning and action agencies of the Department of Agriculture, and the Institute for Social Research at the University of North Carolina. In these and other programs for regional development, as noted in the introduction of this report, two lines of development have been set forth as indispensable if the region is to realize the future standards of living latent in its soil and men: a general departure from single cash-crop farming in favor of agricultural diversification, and an equally drastic development in nonagricultural employment to stem from industrialization as an outlet for surplus agricultural labor.

Impact of War Upon the Regional Economy

Into a region which had been involved in a long and not wholly unsuccessful struggle with an overbalanced and maladjusted agrarianism, there came the realization, even before the fall of 1940, that Axis domination of a considerable portion of the world threatened to destroy the markets for Southeastern export products. Soon thereafter, for reasons of climate, terrain, and land values, the Nation, preparing to train an army of record size, turned to the Southeast as an area suitable for the location of a preponderance of its training centers. The war program was soon demanding the full use of the region's meager industrial capacity and, directly or indirectly, sponsoring small but significant additions to it. The rural unemployed and underemployed began to find jobs, the flow of money into the region began to be felt; the Lend-Lease Act began to make unusual demands for food production in the region.

Since the impact of war has a direct influence upon the region's basic problems of farm, business and industrial adjustment, the long-range development program of the region demands that all probable effects should be carefully considered. The necessarily rapid developments in a wartime economy prevent the complete and accurate analysis of social and economic data, which are subject to constant change. However, on the basis of available evidence, a study of the interaction between the war program and the region's basic problems should prove of present and post-war value.

The Southeast has felt the impact of war throughout the whole fabric of its economy. The loss of cotton export markets, the shock of which has been temporarily absorbed by increased military and civilian needs, may be expected to continue after the war. The war has also curtailed outlets for tobacco; despite possible increase in domestic consumption, the accumulation of large surpluses is to be expected. The naval stores industry has experienced some relief from its depressed pre-war condition, but post-war prospects are not particularly bright. War requirements have resulted in such an increase in lumbering that conservation efforts to prevent overcutting are sorely needed. War needs are giving momentum to the southward movement of the paper and pulp industry. The food demands both of soldiers in southern cantonments and of Lend-Lease operations are producing changes in agricultural production which are highly desirable for long-range agricultural planning. Finally, military and industrial activities are removing land from cultivation and bringing about intraregional migration in both farm and nonfarm populations.

Cotton

While exports of cotton from the United States declined 82 percent to a low not reached since the 1860's and while large portions of the world's spindles are under Axis control or at a low level of activity,

[5] *Federal Reserve Bulletin*, December 1940, p. 1290.

the cotton farmer is receiving today the highest price for cotton since 1929 and the highest price for cotton seed in more than 21 years. This is the result of an increase in the loan rate to 90 percent of parity, "heavy domestic consumer and industrial purchases accompanying the Nation's tremendous defense activity, large direct Government purchases both of cotton textiles and products partly made from cotton, a smaller than average crop, and possible substitution of cotton for other fibers." [6] Exports have been estimated for 1941 at slightly over a million bales and home consumption at somewhat above 10½ million bales, about a million bales more than last year. As the result of the short crop and the continuation of the surplus removal program, this demand was expected to exceed the 1941 crop by 1,500,000 bales. It will thereby reduce the annual carry-over, which is still about double consumption.

The relatively high prices of cotton and of alternative farm products, along with employment opportunities afforded by the war program, have permitted some helpful adjustments in domestic production. The successful development of synthetic fiber production in both Japan and Continental Europe may greatly limit the foreign market for cotton after hostilities cease. During the decade 1930–40 this country exported an average of around 6 million bales of cotton. If world markets should fail to return after the war the United States would have no market for 5 million bales of an average annual production (for the 1930–40 decade) of close to 13 million bales.

Tobacco

During 1930–40, the United States produced annually around 1,200 million pounds of tobacco, roughly one-third of which was sold in the export market.[7] Because of market disruption due to war this proportion is expected to drop to a sixth, its lowest in 80 years. The probable increase in prices resulting from a small crop and an increase in domestic demand due to rising payrolls will probably absorb the shock of the loss of export markets. But it is not expected that increases in domestic consumption will be of sufficient volume to prevent tobacco "disappearance" (total tobacco sold locally plus that sold in the export market) from falling below the high levels of recent years,[8] thus adding to the annual carry-over which now ranges from one-half to almost three times the annual production. In this there is small hope for the thousands of families which it is estimated are already equipped, at full production, to produce at least 50 percent more tobacco than the world now consumes.

Naval Stores

The naval stores (rosin and turpentine) industry, another important segment of the region's rural life, for many years has had a market for over 55 percent of its product in Europe and in the Far East.[9] Despite this outlet for more than half its production, since 1934 Commodity Credit Corporation loans have been necessary to sustain the price level against a large annual carry-over. An aggressive national advertising campaign and wartime needs have raised the production goal for turpentine to 400,000 barrels for the crop year, April 1942 to March 1943, as compared with 285,000 estimated in 1941–42.[10] Since rosin is necessarily produced in a fairly constant ratio to turpentine this may serve to add to the present carry-over of rosin, although stocks are being reduced at the present by domestic consumption and direct use for military purposes.

Lumber and Pulpwood

The impact of war on the production of lumber and pulpwood quite reverses the pattern set by cotton, tobacco, and naval stores, because these products are not exported in any significant quantities. Construction of Army cantonments, aviation bases, and warehouses; timber for ships and crates and boxes; and wood cellulose for gunpowder have meant an increase in the demand for southern pine and a corresponding increase in consumption which has been estimated as high as 20 percent.[11] With sawdust piles giving evidence along every highway and backroad of the return of the itinerant sawmill, the problem becomes one of conservation rather than production limitation. Defense demands have already resulted in a considerable amount of over-cutting and more may be anticipated.

With Canada trying in every way to maintain a favorable balance of trade, there is little chance that Southeastern pulpwood will be moving to the markets of the North, unless it is to replace the pulp formerly imported from northern Europe.[12] Rather, wartime

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[6] *The Cottan Situation*, Bureau of Agricultural Economics, September 1941, p. 7.

[7] *Agricultural Statistics, 1940*, U. S. Department of Agriculture, 1940, p. 164. *The Tobacco Situation*, Bureau of Agricultural Economics, September 1941.

[8] *Regional Adjustments to Meet War Impacts*, U. S. Department of Agriculture, October 1940, p. 18.

[9] *Gamble's International Naval Stores Yearbook, 1939–40*, W. T. Gamble Co., Savannah, Ga., April 1940.

[10] "Situation Summary," U. S. Department of Agriculture, Farm Defense Program—Series No. 1, September 10, 1941, p. 5.

[11] Boyce F. Martin, "The Cellulose South," reprinted from the *Harvard Business Review*, Cambridge, Harvard University Press, Autumn, 1941, p. 46.

[12] *Regional Adjustments to Meet War Impacts*, U. S. Department of Agriculture; October 1940, p. 14.

needs have accentuated the trend of the pulp and paper industry to this region which contains all the new pulp mills constructed in the last five years.

With pulp imports dwindling to almost nothing, it has become increasingly apparent that integrated mills producing their own pulp have distinct advantages. The majority of Southeastern paper mills are of this type and benefit accordingly in the present abnormal situation. As the present developments continue, the need for new mills may grow.

Food Production

Early in September 1941, the Secretary of Agriculture presented the tentative or suggested production goals for agricultural products of crucial importance to national defense. Three objectives entered into the proposal: (1) the maintenance and, in some instances, the increase of per capita consumption of food and other farm products at home; (2) the supply of agricultural products for Lend-Lease operations and other export purposes; and (3) the maintenance of stock piles to provide for further increases of foreign trade and to compensate for possible crop or livestock losses. These goals exceeded the record production figures for the 1941 crop season and, furthermore, having been established on the basis of the Lend-Lease Act making the United States both the arsenal and larder of countries resisting aggression, were subject to upward revision with continued Axis aggression. The Department of Agriculture, together with other agencies, distributed these production requirements for 1942 in the form of State quotas. (See table III.) The highest increases were assigned to Wisconsin, the Far West and the South. The increases in the South were practically forced by the local demands from concentrations of military camps for milk and other foodstuffs, necessitating higher numbers of certain livestock and higher acreages of feed and truck crops.

In the opinion of farm adjustment specialists the goals for the South stand out uniquely in contrast to those for other regions in that they are in line with desired long-range changes. It has long been agreed that, for reasons of soil conservation and adequate diet, as well as for reasons of foreign trade, the Southeast must turn from the single cash-crop system toward agricultural diversification.[13] The proposed increases in the production of milk, eggs, pork, and vegetables are particularly desirable. Likewise, the expansion in peanuts may aid desirable future development, but there are many questions regarding the crop that are as yet unanswerable. Higher production goals have been outlined for 1943 in expectation of larger food requirements for domestic consumption, Lend-Lease and other food export operations. This means even greater progress toward future nutritional needs in the region.[14]

The percentages of change over 1940 or 1941 which will result from the 1942 expected production are shown in table III. Milk and egg production will be increased by 11 percent, cattle and calves for market and slaughter by 12 percent, and commercial truck crops by 4 percent. Cotton acreage will be reduced by 5 percent, with no increase in flue-cured tobacco and a 3 percent decrease in burley tobacco. The impetus these changes give to readjustment of the farm management pattern is reflected in the increased acreages for feed crops for livestock: oats will be increased by 32 percent and hay, a crop which serves the double purpose of stock feed and soil-building, by 6 percent.

TABLE III.—*1942 production goals and 1941 estimated production in the Southeast for selected products* [1]

Products	Units	Estimated production 1941 *Thousands*	Suggested goal or expected production for 1942 *Thousands*	Percent of change from 1941	Percent of change from 1941 for Nation
Milk	Pounds	8,135,000	9,016,000	11	7
Milk cows	Number	2,495	2,545	2	3
Eggs—on farms	Dozen	288,084	320,343	11	11
Corn—noncommercial	Acres	17,954	18,200	1	2
Oats	Acres	1,724	2,281	32	5
All hay	Acres	7,125	7,540	6	1
Upland cotton	Acres	9,063	8,616	−5	−6
Total commercial truck crops for fresh consumption.	Acres	656	681	4	3
Flue-cured tobacco	Acres	684	684	0	0
Burley tobacco	Acres	71	69	−3	−6
Peanuts harvested for edible nuts and oil.	Acres	1,335	2,373	78	83
Hogs—marketing and farm slaughter liveweight.	Pounds	[2] 1,538,380	1,458,794	−5	5
Cattle and calves—marketing and farm slaughter liveweight.	Pounds	[2] 869,050	973,335	12	15
Sheep and lambs—net liveweight, prod. calendar year.	Pounds	[2] 25,325	26,275	4	2
Soybeans for beans	Acres	[2] 328	571	74	26

[1] Compiled from "Suggested State Distribution of Goals or Expected Production for 1942," *Bureau of Agricultural Economics Bulletin*, U. S. Department of Agriculture, September 1941.

[2] Since 1941 data were not yet completed for this item when this study was made, the data given are for 1940.

Displacement of Agricultural Lands and Farmers

For military and industrial purposes, the Federal Government had authorized in July 1941 the purchase of 817,883 acres in six Southeastern States, about one half of which was farm land.[15] About 3,285 families were displaced, a large proportion from farms. According to the best available data, that of the Farm Security Administration which has been charged with the difficult problem of finding suit-

[13] In the section, "Agricultural Development," in Part II of this report, adjustments are analyzed intensively for each of fifteen sub-areas of the Southeast with reference to long-range implications and production problems involved.

[14] See table XII, p. 58; see also "Appendix," tables I–VII, pp. 246–248.

[15] *Hearings on National Defense Migration*, pt. 17, July 1941, Committee Investigating National Defense Migration, House of Representatives, 77th Cong., p. 6853.

able new locations for these families, the extent of purchase and displacement is as follows:[16]

	Acreage authorized	Number of families displaced
Alabama	65, 940	403
Georgia	360, 000	860
Mississippi	8, 843	40
North Carolina	106, 000	151
South Carolina	245, 100	1, 341
Tennessee	32, 000	490
Total	817, 883	3, 285

Migration of the Rural Population [17]

Migration from rural areas to training camps, industrial centers, and cantonment construction sites might ordinarily be expected to create farm labor shortages. In Alabama, in areas immediately adjacent to war industries, farm labor was reported to be inadequate for the usual farm operations. In Florida defense projects appeared to be an important factor in the effective depletion of farm labor. Georgia had no shortage of farm labor in 1939, but a scarcity during the harvesting season of 1940 appeared in intensive cotton, tobacco, peanut, and peach producing counties. In North Carolina no general shortage of farm labor had appeared. In South Carolina an ample supply of farm labor was available throughout 1939 and 1940 except in the Charleston area and in a few other minor sections during the fall of 1940. Tennessee was reported to be having considerable difficulty in securing farm labor. Mississippi, with relatively few defense industries, probably had no serious difficulty with its farm labor supply.

During the fall harvesting season of 1941 there was no general farm labor shortage in the region, owing to the unusually long harvesting period that prevented peak labor loads as well as to a light cotton crop. In the specialized farming areas, where dairy products, vegetables, and plants are produced, there were shortages in farm labor. Florida and the coastal counties of the States bordering on the Atlantic felt the loss of migrant workers and this was expected to continue into the winter and spring harvest of fruits and vegetables. Surplus populations from the Appalachian Mountain areas of Tennessee and North Carolina have been recruited for industrial centers outside the region.

Two conclusions are readily apparent. First, the rural population, especially the farm sector of it, had such a surplus of labor in 1940 that no serious farm labor shortage occurred, despite a large enrollment in the military services, the extensive cantonment construction program, the location of war industries and the awarding of large contracts in the area. Secondly, as late as the fall of 1941, despite migration of rural people to industrial centers, there was no general farm labor shortage; the acute shortages occurred in localities immediately adjacent to war industries or in specialized farming areas, especially the vegetable and fruit areas of Florida and vegetable areas of the Atlantic Coast counties.

Principal Wartime Expenditures

Aside from its effects upon agriculture, the principal impact of war upon the region is in the expenditure of Federal funds for training camps, flying schools, supply depots, new industrial plants for the production of munitions, shipbuilding, and power dams. (See Fig. 15.) To these may be added the expenditures for textiles and other commodities produced by the regular industries of the region, and the amounts of military and other public payrolls.

It is not possible to record the full amount of such expenditures. The Navy Department ceased to publish the amounts of its contracts for shipyard construction and shipbuilding on July 1, 1941. Army payrolls can only be roughly estimated, and data on quartermaster purchases are unavailable. As to private industry, while the Federal contracts are generally published, a special situation within this region arises from the presence of many branch plants of multi-establishment concerns; 68.5 percent of the region's manufacturing was produced by plural-unit concerns in 1939, indicating their importance. The branch plants' share in war production is contracted for centrally, and appears in the published contracts for New York, Pennsylvania, or some other State A somewhat similar situation obtains in regard to many subcontracts, which are privately let. Any compilation of the known figures, accordingly, is certain to be a considerable understatement.

As a minimum figure, therefore, the Federal Government, between July 1, 1940 and August 30, 1941, made or projected expenditures for construction and manu-

[16] According to the testimony presented to the Committee on National Defense Migration by the Farm Security Administration, "Of a total of 4½ million acres, the purchase of which was authorized by Congress for the fiscal year ending June 30, 1941, 3.8 million acres had already been acquired by June 1, 1941. By July 1, 1941, the acquisition of 1½ million acres had brought about the displacement of 8,811 families. Part of the remaining two-million-odd acres already taken over, on which the Farm Security Administration does not have information, was also farm land. The rest of the acquired acreage was timberland, cut-over, desert, and range land. It is estimated that farm land constitutes about half of the land taken over for military purposes." (*Hearings on National Defense Migration*, pt. 17, p. 6849.)

[17] The region reported includes six of the seven Southeastern States. Mississippi is not included in the Southeastern Area of the Division of Farm Population and Rural Welfare, Bureau of Agricultural Economics, the source of the data used here.

facturing in the seven States of this region amounting to $1,547,701,524,[18] as follows:

Allotment	
Tennessee	$231, 364, 542
Alabama	424, 261, 235
Florida	197, 587, 733
Mississippi	173, 576, 854
North Carolina	169, 098, 532
South Carolina	184, 308, 019
Georgia	167, 504, 609
Total	1, 547, 701, 524

[18] This figure and its breakdown are based on Defense Contract Reports of the Office of Production Management (originally issued by the Office of War Information), Department of Labor Contract Reports, data collected by the Atlanta office of the Defense Contracts Service, defense housing reports of the Federal Works Agency, and other data collected by the Atlanta Field Office of the National Resources Planning Board.

Distribution	
Camp construction: Ground and air; hospitals, buildings, etc	$533, 907, 127
Shipyards and shipbuilding	497, 342, 923
Munition and other "heavy" new industries	374, 980, 927
Textile orders	76, 412, 994
Army and Navy supplies	12, 425, 531
Airplanes, parts, and material	52, 632, 022
Total	1, 547, 701, 524

The projects into which these (and the omitted) funds are being translated include 15 major Army training camps; 36 Army and Navy air bases and flying schools; 14 semiprivate elementary flying schools; 10 military arsenals and supply depots; shipbuilding at 7 seaports;

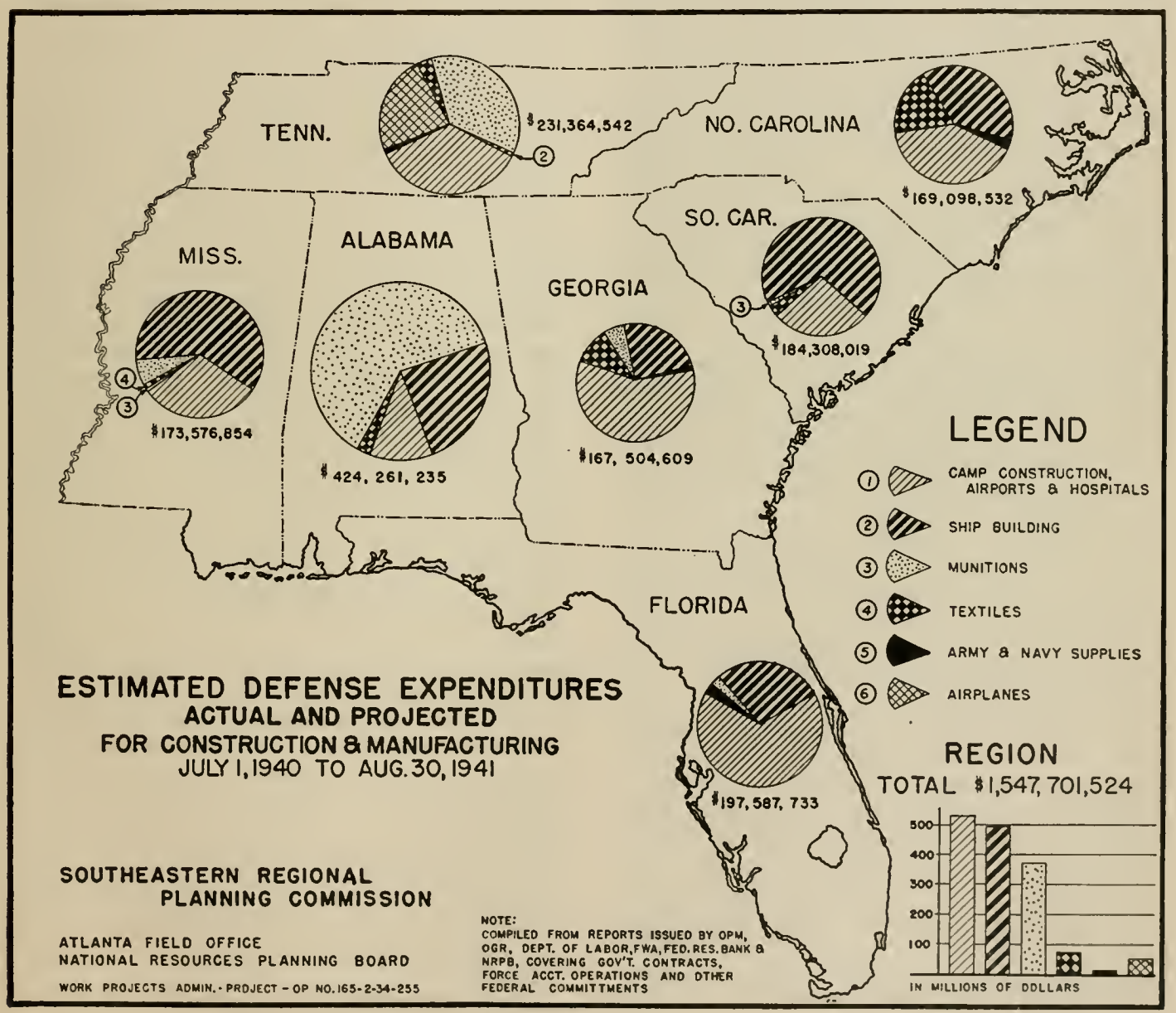


Figure 15

16 new "heavy" manufacturing plants in the munition category; 5 new power dams in the TVA system.[19]

New Industrial Capacity

The Southeast, long deficient in industrial plant capacity, will soon have increased its industrial facilities, under the impetus and with the assistance of the war program, by more than $300,000,000, over and above strictly military and naval developments—cantonments, arsenals, shipyards.

About two-thirds of this sum will provide new plants or increase the capacity of types which may be converted readily from war to peacetime uses, and which may prove the basis for much new industrial growth. Most notable in this connection are the five power dams being constructed by the Tennessee Valley Authority. The new blast furnace capacity will provide the basis for additional durable goods processing industries, in which the industrial pattern has been especially deficient. The new aircraft plant brings into the region a line of industrial production closely related to the new aluminum plant capacity and promises the development of transportation facilities which may revolutionize travel and freight-hauling practices. A new steel processing plant, a new metallurgical plant making ferrous alloys, and a nitrate plant are equipped now to service agricultural and industrial needs of a peacetime economy.

Munitions plants of various types in the Southeast total nearly $16,000,000 in new plant capacity. Some of these plants need only retooling and most of them are capable ultimately of being turned to peacetime uses in the durable goods processing which is needed to provide a balance for the blast furnace, steel and aluminum capacity cited above.

Certain other new plant capacity, mainly in bag, fuse, and shell loading and in powder production, may increase the region's normal industrial plant only after having undergone major changes. Their cost makes up roughly one-third of the estimated expenditure for new industrial capacity in the region to date.

The gain in industrial plant capacity is small in comparison to that elsewhere in the Nation, but in terms of the distinctive long-range needs of the Southeast, its importance is considerably magnified. No previous industrial growth and promotional effort in the region have been so great or effective as that which has occurred in less than a year of the war production program.

The WPA was allotted $30,359,931 for camp construction, and an additional $336,349 for plant construction. The various projects have involved the erection of $37,964,493 worth of new housing and $2,403,125 worth of sewer, railroad, power-line, and accessory construction. The awards to the textile industry included $168,000 for new housing of workers and $76,402,994 in contracts, but no amount for plant expansion has been recorded.

For enlarging and improving virtually all airports in the region, excluding North Carolina, the Civil Aeronautics Administration program included 42 projects totaling $22,518,000 in the period under consideration.

Income Distribution

The above sums were being increased continually. Obviously, a considerable portion would be spent outside the area for machinery, equipment, raw materials, etc. Also, the payments on contracts would come into the region gradually, and the distribution to wage earners, direct and indirect, would be more gradual still, nor would all the payroll be expended regionally. On the other hand, the payroll of not less than $14,175,000 monthly received by approximately 750,000 naval and military personnel (exclusive of officers) in the various cantonments of the region, as of July 1, 1941, added considerably to the intraregional disbursements. The unknown amount of subcontracts includes important purchases of lumber and other regionally produced building materials, though reduced by the meager machine-shop capacity of the Southeast. The intangible and indirect gains involved in greater employment, added skill of former farm workers, usage of previously idle resources and elevated standards of living due to the dissemination of these funds are elsewhere discussed.

The significance of these expenditures may be further indicated by comparison with the seven Southeastern States' share in the national income. According to income studies of the Department of Commerce, the region's share in 1939 amounted to $5,307,000,000. It appears accordingly that recorded items of defense manufacturing and construction from July 1940 to the end of August 1941 were nearly 30 percent as large as the region's entire share in the national income for the last full year prior to defense.

Indices of retail and wholesale sales for the Sixth Federal Reserve District (embracing Alabama, Florida, Georgia, Louisiana, Mississippi, Tennessee) increased from 129 to 140 and from 69 to 90, respectively, in December 1941, over December 1940.[20] For the entire South, including this region, the Department of Commerce adjusted index of rural sales of general merchandise stood in December 1941 at 343.9—the highest of any major section of the United States—compared to 268.3 in December 1940.[21]

[19] Other dams besides those of the TVA also were projected or under construction. In reading this entire discussion, the many and extensive subsequent changes must be borne in mind.

[20] "Monthly Review" *Federal Reserve Bank of Atlanta Bulletin*, January 1942.

[21] *Survey of Current Business*, February 1942, p. 5–7.

Regional Savings

War expenditures have been tremendously stimulating to the regional economy. Some of these expenditures and some of the expenditures which they stimulate are funneled through the banking structure into regional savings. Reports on banking operations provide a partial index of the accumulation of savings.

In December 1941, 20 member banks in selected cities of the Sixth Federal Reserve District reported demand deposits 24 percent, or $108,600,000, above those of December 1940. For the District as a whole, total assets and total deposits of member banks in September were far above the record peaks of the 1930's. Loans and investments also increased, but total reserves increased much more substantially and in September reached an all-time high. (During 1941 loans and investments of member banks in the District did not expand as rapidly as in the Nation as a whole, so that both in relative and in absolute terms the total reserves of these banks were increasing at a faster rate than those for the Nation.) In September 1941, the excess reserves of the Sixth District member banks had risen to the record figure of slightly over $100,000,000.[22]

The future application of these savings is of major importance. In the form of idle bank deposits they hold the threat of inflation through credit expansion which the Federal Reserve System is working to forestall. Inflation during the war period, or deflationary influences following upon the cessation of war production, could wipe out these reserves, while idle savings released in quantity when war production ceases might also stimulate an inflationary movement. However, through price control, and other anti-inflationary measures, the fiscal system may be kept at even keel, and the accumulations of savings, now more than adequate to finance the capital needs of regional business during the war, may provide an important source of investment funds for industrial expansion in the post-war period.

Much depends in this connection upon the pattern of institutional finance and its ability to apply the regional savings to new developments of the "venture" type, both in agriculture and in industry.

Impact of War Upon Nonagricultural Employment

The total of nonagricultural employment in this region had been virtually stationary during the year immediately prior to the national defense emergency. Comparing the first half of 1940 with the first half of 1939, in manufacturing, construction, trade, the services, and other occupations covered by unemployment compensation,[23] a slight gain in manufacturing employment was offset by decreased employment in construction and other lines, so that the month of the highest total gain, February, was only 1.8 percent ahead of February of the year before. In comparison to the growth of the population, nonagricultural employment in this region may in fact have declined. The total of covered employment for the region was 1,931,534 in June 1939, and 1,936,474 in June 1940, a gain of only 0.26 percent for the year preceding the national emergency.

The effect of war activity was first to be noted in July 1940, in a general expansion of employment to a point 6 percent ahead of that of July 1939. In August the construction industry in Alabama, Florida, and Tennessee leaped ahead of the 1939 employment levels by 10.5, 13.0, and 10.7 percent, respectively. This, with some increase in trade employment, accounted for a total regional gain of 85,165 jobs, or 4.4 percent in a month, the number of covered workers in the region passing the 2,000,000 mark for the first time on record (table IV and Fig. 16).

Normally showing a slight seasonal decline, September 1940 increased by 3.4 percent in covered employment over the previous month, and 7.3 over September 1939. This was largely due to the growth of defense construction, but textile manufacturing also began to show the results of military and naval orders. These influences placed the total of September 1940 employment ahead of that of September 1939, by 13.8 percent in Florida, 10.7 in South Carolina, 10.0 in Alabama, and 9.7 in Tennessee.

North Carolina was only slightly affected by war production thus far, and Georgia and Mississippi were unaffected. In October 1940, all 7 States participated in a total net gain of 85,000 jobs over the previous month. Of these, 50,000 were in construction and 21,000 in manufacturing; the latter included not only textiles, but a considerable increase in the lumber industry. Cement and brickmaking also showed gains. In this month Florida employed 22,000 additional workers, North Carolina 13,500, Georgia 9,800; while Mississippi, with 17,200 new jobs in lumbering and

[22] "Monthly Review," *Federal Reserve Bank of Atlanta Bulletin*, October 31, 1941.

[23] The employment in private nonagricultural establishments employing eight or more workers ("covered" employment under unemployment compensation) is precisely known through the employers' reports rendered to the State offices of the Bureau of Unemployment Compensation, Social Security Board. The discussion in this section is based entirely upon these data, which are preferred because (a) they are carefully attested to and compiled and (b) are actual totals rather than expanded-sample estimates. There are, however, some omissions, the major ones being: agricultural, domestic-service, and Government employment; interstate transportation since July 1939; and employment in all less-than-eight-worker concerns. These omissions do not greatly affect the figures for war construction and production, though trade and service employment is somewhat understated by the noninclusion of the small establishments. The "covered" employment for 1941 is further understated by a minor number of concerns, varying by quarters, for which the quarterly employment was reported too late for inclusion in the totals.

construction, reported a total employment gain of 18.1 percent above October 1939. The over-all gain for the region, above the corresponding month of 1939, was 10.8 percent.

TABLE IV.—*Number of wage-earners in all "covered" employment,[1] Southeastern Region, 1939–1941*

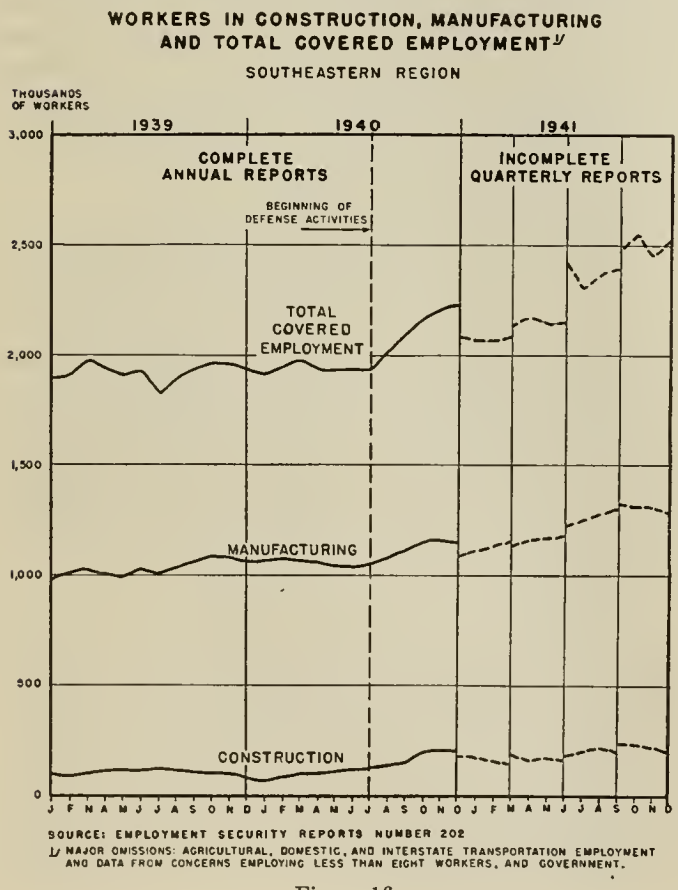
Period	1939	1940	1941 [2]	Percentage gains above previous year	
				1940 above 1939	1941[3] above 1940
January	1,895,789	1,916,701	2,078,590	1.1	[4] 8.4
February	1,907,445	1,941,562	2,075,697	1.8	6.9
March	1,972,028	1,977,912	2,101,402	.3	6.2
April	1,930,425	1,944,847	2,136,973	.7	9.9
May	1,910,536	1,938,605	2,155,972	1.5	11.2
June	1,931,534	1,936,474	2,156,354	.3	11.4
July	1,826,569	[4] 1,137,548	2,310,544	6.1	19.3
August	1,884,524	2,022,712	2,370,314	7.3	17.2
September	1,931,294	2,090,767	2,387,555	8.3	14.2
October	1,964,060	2,175,661	2,660,508	10.8	22.3
November	1,963,252	2,209,859	2,442,939	12.6	10.5
December	1,943,496	2,222,189	2,616,714	14.3	17.8

[1] Including manufacturing, construction, trade, service, transportation, finance, mining, and industries arising from agriculture. Principal omissions: Agricultural employment, domestic service, interstata transportation (since July 1, 1939), and establishments employing less than eight workers. Source: Bureau of Unemployment Compensation, U.S. Social Security Board.

[3] Source: Quarterly reports to the Bureau of Unemployment Compensation, each quarter being for identical concerns, but omitting reports too late for inclusion.

[2] 1941 figures incomplete; hence gain here shown is a minimum actual gain.

[4] Period of national defense begins.


WORKERS IN CONSTRUCTION, MANUFACTURING AND TOTAL COVERED EMPLOYMENT[1/]
SOUTHEASTERN REGION
THOUSANDS OF WORKERS
1939
1940
1941
3,000
2,500
2,000
1,500
1,000
500
0
COMPLETE ANNUAL REPORTS
INCOMPLETE QUARTERLY REPORTS
BEGINNING OF DEFENSE ACTIVITIES
TOTAL COVERED EMPLOYMENT
MANUFACTURING
CONSTRUCTION
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SOURCE: EMPLOYMENT SECURITY REPORTS NUMBER 202
1/ MAJOR OMISSIONS: AGRICULTURAL, DOMESTIC, AND INTERSTATE TRANSPORTATION EMPLOYMENT AND DATA FROM CONCERNS EMPLOYING LESS THAN EIGHT WORKERS, AND GOVERNMENT.

Figure 16

In November 1940 these gains were extended. Employment in Florida was 16.9 percent ahead of that of November 1939, and North Carolina added 10,000 workers, principally in textile manufacturing. For the region, the advance against the previous November was 12.6 percent. December normally registers a seasonal decline in this region, and December 1939 had seen a decline of 20,000 jobs from the level of the month before. But December 1940 showed a net gain of 13,000 jobs over November 1940. Thus, at the year's end, there were 2,222,189 workers in covered employment as against 1,943,496 at the end of 1939, and 1,936,474 at mid-year of 1940. War production had created nearly 300,000 new jobs in 6 months' time.

In the first quarter of 1941, to judge from incomplete figures,[24] there was evidently a slight recession in total employment. Manufacturing was ahead of the same period of the year before by a minimum of 5 percent in January and 8 percent in March, but does not appear to have gained over the latter months of 1941. This indicates that the textile expansion had been completed, while the new "heavy" war industries were still in the construction stage. Construction work, however, was extremely active. By comparison with the total employment of 1940, the incomplete 1941 figures showed advances over the year before of 124.0 percent in January, 79.6 percent in February, and 45.2 percent in March, all States in the region participating in the building of new cantonments and war factories. Trade and the services, however, lagged behind the more basic developments. These being derivative industries this was apparently a lag in time.

For the second quarter of 1941, apparently a larger portion of the employing establishments reported promptly than for the first quarter. Moderate increases in employment were resumed. Manufacturing now stood at a minimum of 10.6 percent, 12.8 percent and 14.3 percent ahead of the April, May, and June of 1940. The textile expansion entered its second and final phase; the lumber industry continued very active; the new industries were not yet in production. Some of the more easterly cantonments were completed and the wave of construction activity began to move west; construction employment was 54.5, 46.3 and 37.3 percent ahead of the corresponding months of 1940, respectively. There was a slight pick-up in trade em-

[24] As previously stated, the figures here given for 1941 are the actual returns of the promptly reporting establishments only. Experience shows that from 90 to 95 percent of all employment is reported promptly. There is, however, a variation from quarter to quarter in this respect, and an additional variation occurs in a period of rapid expansion because of the new arrival of formerly smaller establishments into the eight-or-more-workers category. It is statistically unsafe to treat the promptly reported figure as a sample for expansion purposes. The total 1940 figures are compared with only partial (though actual) figures for 1941; hence the employment gains of 1941 over the year before were actually greater than here appears.

ployment but the services still lagged. The reported totals of covered employment for the region were: at the end of April, 2,136,973; of May, 2,155,972; of June, 2,156,354. Even though these figures were somewhat incomplete, they still exceeded the complete totals for the three corresponding months of 1940 by 9.9, 11.2 and 11.4 percent.

The third quarter of 1941 saw strong upward trends in employment resumed throughout the region. In manufacturing, the growth of shipbuilding now made itself felt, the first expansions of facilities having been effected.[25] A considerable expansion of hiring also took place in the Birmingham iron and steel industry and in the Tennessee Valley area. The major peacetime industries of the region—principally textiles and lumbering—were at unprecedented peaks; there was still considerable production for civilian as well as for war needs. Already, however, pressure was being felt by small industries, and by such nonmilitary activities as stove manufacturing, due to inability to obtain war orders or subcontracts. Shortages of silk, and other effects of the early priority orders, were also beginning to be felt. Trade and the services were increasing their employment as the new cantonments developed the adjacent towns. In manufacturing, with apparently much the same proportion of employers reporting promptly as in the second quarter of the year, the gains over 1940 rose to 20.4, 19.0, and 16.8 percent for July, August, and September, respectively. Gains in construction were even greater, being 61.3, 58.4 and 33.3 percent for the 3 months, over 1940. The total minimum gains for the region, in all covered employment, amounted to nearly 400,000 jobs above the same 3 months of 1940, or percentage gains of 19.3 percent for July, 17.2 percent for August, and 14.2 percent for September 1941.

In the final quarter of 1941 war work was preponderant in the regional economy. Manufacturing employment continued consistently from 5.8 to 8.3 percent ahead of that of the corresponding period of the year before, even though that period in 1940 had been the highest on record. In October 1941, 1,322,560 wage earners were reported in manufacturing or a gain of nearly 300,000 in 2 years' time and 150,000 in a single year. Some of the new industries were beginning to produce. Construction employment showed a considerable flattening out from the summer levels; this was 19.6 percent ahead of 1940 in October, 10.2 percent in November, and only 0.4 percent in December. Trade and service were higher than at any previous time. The total of covered employment reached its all-time peak in October, for which 2,660,508 wage earners were reported, as against 1,936,474 when the war period began. The figures for November and December 1941 showed a slight seasonal decline, but there was still a minimum of more than 2,600,000 workers in the various nonagricultural occupations when 1941 ended (table V, VI).

Since December 1941, important additional plant expansions have occurred. Also, various new cantonments and factory projects have been placed under construction. Disemployment due to priorities and to the failure of small concerns to obtain war contracts has been an increasingly negative factor; the workers have generally been absorbed in the war occupations, but independent manufacturing enterprises were being hard hit.

TABLE V.—*Number of wage earners in "covered" employment*[1] *by principal industrial groups, period of national defense, Southeastern Region*

Industry	June 1940	June 1941 [2]	Percent gain [3]	December 1940	December 1941 [2]	Percent gain [3]
Manufacturing	1,047,985	1,197,334	14.3	1,152,468	1,293,627	12.3
Construction	124,992	171,806	37.3	201,900	202,801	0.5
Trade	408,880	428,773	4.9	490,650	518,126	5.6
Service	125,228	122,693	−2.0	135,617	140,028	3.3
Other	229,389	235,946	2.9	241,554	462,132	91.3
Total	1,936,474	2,156,354	11.4	2,222,189	2,616,714	17.8

[1] Source: Bureau of Unemployment Compensation.
[2] Incomplete by omission of late-reporting employing concerns.
[3] Minimum known gain.

TABLE VI.—*Number of wage earners in all "covered" employment*[1] *by States, period of national defense, Southeastern Region*

State	June 1940	June 1941 [2]	Percent gain [3]	December 1940	December 1941 [2]	Percent gain [3]
Alabama	280,938	327,566	16.6	312,056	397,110	26.8
Florida	222,707	240,479	8.0	302,540	296,288	−2.1
Georgia	345,447	403,699	16.9	384,101	413,558	7.7
Mississippi	110,649	125,648	13.6	127,518	141,455	10.9
North Carolina	448,242	440,000	−1.8	517,855	523,838	1.2
South Carolina	214,801	256,732	19.5	243,195	257,599	5.9
Tennessee	313,690	362,230	15.5	334,924	386,866	15.5
Region	1,936,474	2,156,354	11.4	2,222,189	2,616,714	17.8

[1] Source: Bureau of Unemployment Compensation.
[2] Incomplete by omission of late reporting employing concerns.
[3] Minimum known gains.

The Labor Training Program

In a region which has fallen short of a full development of its industrial potentialities partially because it lacked skilled labor, the increase in nonagricultural employment, in addition to producing higher income levels, is contributing importantly to a rise in labor skills. For example, it is reliably estimated that for the year ending June 30, 1941, one-fourth of the 300,000 increase in covered employment was largely accounted for in new construction workers from rural areas. No less than 45,000 were new textile workers. New workers were notably spread through other lines, such as steel, shipyards, cement, aircraft, powder and bag loading, brick, munitions. A similar influx of new workers has undoubtedly occurred in other lines, especially in service occupations.

[25] The largest shipyard in the region, the Navy Yard at Charleston, S. C., is not included in these figures.

The region is benefiting especially from the defense labor training program, which extends from the employment office of the business or industrial establishment to the class-room or training shop; which reports skill requirements and thereby determines the nature of the training school courses; which is interlocked between the States through the regional coordination of the United States Employment Service, the United States Office of Education, and the National Youth Administration. State Employment Service offices, acting through their local branches, determine and define the need for training, the number of workers needed, when and where they are needed, and the occupational requirements to be met by trainees for employment. The actual training program falls to the United States Office of Education and the NYA. The former executes its responsibility through the continuing programs of the State Boards of Vocational Education and the latter through its own work projects and work camps. In addition, the Office of Education conducts a separate engineering training program in cooperation with the engineering schools.

During the latter half of 1940 and early part of 1941, the war training program was in its formative stage. By May 1941, 135,000 trainees had been enrolled in the seven Southeastern States. The majority were in pre-employment refresher courses and in supplementary courses connected with war work. Enrolled in training courses at the same time were 7,694 college students, about 8 percent of the national total. This training program was augmented in July by an addition to NYA funds. In addition, the Apprenticeship Unit of the Division of Labor Standards contributed to the training of 2,800 employees during this early period, and the Training Within Industry Section of the Labor Division of the Office of Production Management gave specific advisory assistance to about 50 industries, having 75,000 employees, within the region.

Summary of Major Implications of the War to Long-range Regional Development

(1) Through the greatly increased need for essential foodstuffs and industrial raw materials, the transfer of unemployed and underemployed rural workers into war production activities, and the expanded food production program, the farm management pattern which agriculturalists have been working to establish against tremendous odds has been forwarded at a rapid rate. With the successful prosecution of the war production program the region may enter the post-war era with an improved farm management pattern which it would have taken many years of peacetime effort to have created.

(2) Wartime expenditures are building up an accumulation of savings in the region which promises to provide an important source of funds for capital investment in the post-war industrial expansion. That expansion is crucially needed to maintain the new proportions of employment which wartime activities have established between agricultural and nonagricultural employment and thus to contribute to the improvement of the farm management pattern.

(3) Drastic increases in nonagricultural employment, involving the participation of thousands of new workers, and the labor-training program are building up the level of skills in the region's labor force and promise substantially to lessen the deterrent to industrial growth to which the pre-war preponderance of low skills in the labor force contributed.

(4) The establishment of new industries in the region, while small in terms of the Nation as a whole, has added measurably to the industrial plant capacity of the region. Some of this new capacity is in (a) industries which can step immediately into peacetime production, and (b) industries from which new durable processing industries may develop.

(5) At each of the shipbuilding centers, the industrial centers, and the training centers, new concentrations of population wholly dependent upon war employment have been created. These centers are likely to be the first critical unemployment areas upon the cessation of war activities, though the maintenance of a larger permanent military and naval establishment may reduce the problem to some degree. Since a substantial number of people at these centers were drawn from the farm, unemployment may return them to the farm; such a return would jeopardize the farm management gains stemming from the war production program.

Considerations Basic to a Pattern of Regional Development

Acknowledging the primary importance of prosecuting the war to a successful finish, and devoting to that end the whole of its resources and manpower, the Southeast region is well aware that the principal problem of the future will be the safe guidance of its agricultural and industrial economy, when the excessive demands of war production decline, into a more compact and better balanced relationship for peacetime. The major implications of the war program to the region's continuing long-range development have been described. War production will grow and change in the months ahead. Thus the future may considerably modify the implications which have been discussed in the preceding sections of this study and add others of which the region is now unaware.

The war is facilitating long-range development of agriculture and industry at an accelerated pace while meeting current production requirements. Assuming the best possible adjustment from the war effort to normal conditions, there is likely to be a critical period during which the transition to peacetime occupations is effected. It is pertinent to sketch, if only in broad lines, on the basis of the war program as we know it today, a view of the region as it is likely to look when that period arrives.

Despite war activities in industry, the Southeast continues to be largely agricultural, with its attention centered upon the diversified farming essential to the Nation's food production program. Such farming means fewer acres in row crops, larger acreages in pasture, hay and forage crops, larger farms, fewer farm operators, and less agricultural employment. War industries and supplementary services, and construction projects, have provided opportunities for the unemployed and underemployed rural workers, but as these activities are curtailed, the region will be forced to cope with a tide of returning agricultural labor.

Apart from the production of food, the primary activities in the Southeast have been in the construction and maintenance of military and naval training establishments, and the building of ships, which have raised total nonagricultural employment to record heights. Many of the new military and naval establishments have been constructed by this time, and the majority of workers transferred to other activities. This postponed any fear that the cessation of war production would see sudden unemployment stemming from this cause. It was evident, indeed, especially in view of present and impending restrictions upon private construction, that construction unemployment would operate progressively to relieve labor shortages in the producing industries.

At over 60 of the military and naval sites, 750,000 men have been stationed for training. Troop concentrations ranging from less than 1,000 to as many as 60,000 men have been centered contiguous to communities whose pre-war populations in many cases were far less than the new military population. The resultant "boom town" conditions have drawn large numbers of nonmilitary people, many of them from the farm, to these centers for the operation of new services which are almost completely dependent upon continuance of the military and naval establishments at present size. While it is most likely that the termination of war will cause considerable unemployment to arise from the contraction of these service needs, the post-war era may require the continued operation of many of these establishments for the maintenance of a curtailed military and naval force. To the extent that such is the case, the adjustment problem will be made considerably easier.

Shipbuilding activities, which are almost wholly dependent upon the war program for their continuance, in full operation will employ 175,000 men. At the end of the war, or very soon thereafter, these coastal cities may very likely become concentrations of unemployed. A substantial number of munitions and other war production plants are capable of producing goods useful in peacetime or are readily adaptable to that purpose; those in bag, fuse, and shell loading and in powder production, though small in number, present more serious problems. They may constitute areas of disorganization during a period of readaption.

Despite the certainty of a post-war decline from its present full employment, the Southeast region is being greatly assisted by the war production program in the direction of needed long-range adjustments. Not all of its present gains are temporary; some will be of permanent worth, and others already reflect vast improvements of the desired type. The region's manufacturing, trade, service, and transportation systems will have been notably expanded and modernized, and each will be better prepared to assume its role in satisfying long-deferred consumer needs which will stimulate production when the war is over. New tools and new skills are being added to the region's resources. A reservoir of accumulated savings will be available to finance new

business ventures and to provide the purchasing power which post-war business will require. The region's agriculture will have benefited from the stimulus toward diversified farming to supplement its limited cash-crop income.

Therefore, to consolidate these gains, and to render the whole of its economy more stable, the Southeast region is vitally concerned with the formulation of those measures which will insure its transition into a peacetime economy fully adequate to its needs. In planning for this post-war development, three considerations are involved: The region's desires; the region's capabilities; the means through which the region may use its resources to build the kind of future it wants.

To plan a desirable future for the region means more than the achievement of efficiency in the use of physical resources; it means the full development of human resources. The value of natural resources lies in their use to satisfy individual and social needs. What people want and need determines the use to which land, water, minerals, forests and other resources will be put, and how much and how little of these will be used. People furnish the purpose and direction to processes of production and are the ends it serves. Their labor, skills and thought provide the means whereby raw materials are turned into products of use and value. It is, therefore, to the end that a better, happier and healthier society may result that any long-range development program has its justification and its purpose.

A Goal for the Future

In discussing the future we want for the Southeast, it should be possible to state a common goal so that the subsidiary issues can be seen simply as means to an end upon which there is regional agreement. If the experience of the Nation with depression and with total war have meant anything, Howard W. Odum has pointed out, it has increased the Nation's determination to conserve, develop and make more generally useful two great sources of a virile society: natural wealth and human wealth.

An all-inclusive statement of the regional goal that best matches the long-time goal of national planning might well be a higher level of living for the great mass of the region's population. Unemployment, inadequate income, under-consumption and inefficient use of natural and human resources are the constituents of a low standard in a Nation as richly endowed as America. "A modern Nation," it has been pointed out, "cannot avoid balancing its total production-consumption budget. This can be done at a low level with a great deal of unemployment, inefficiency and suffering; or it can be done at a high level with full employment, high efficiency, and a better life for all."[1]

For the total population, higher standards of living are required not only to save human resources from the deterioration due to the effects of malnutrition, poor housing, and the inadequate satisfaction of cultural needs, but to insure the level of activity necessary to keep the economic mechanism functioning. In the long run it must be realized that the Nation can balance its budget and carry its fiscal burden only by stabilizing the national income at a high level—possibly around one hundred billion dollars annually. The attainment of such an income level would serve two functions. It would raise the tax base and greatly reduce the necessity for emergency expenditures. It would thus conserve human resources by balancing consumption at a high level with the production necessary to insure full employment. In post-war planning the achievement of this goal seems the only thing likely to prevent a great depression. The Southeast is a strategic area in this approach, for its population, suffering from real and concealed unemployment, low productivity and low income, has a per capita consumption of the goods and services produced by our industrial economy that is lower than any region in the Nation. Thus the region's need to balance production and consumption at high levels fits in with a desirable national goal.

The hopes and aspirations which any people hold for their region as a part of the Nation and the world are seen as the necessary major premise of any regional plan. The regional survey which furnishes the inventory of resources and capacities is the minor premise of the syllogism whose conclusion is the regional plan of development. This analysis, then, is concerned with the future of the region's physical and human resources, and with economic organization and governmental plans necessary to their full utilization and development.

The Future of Physical Resources

We may begin accordingly with some account of what we expect from our natural wealth. It is something of a paradox to say that in the Southeast we need a full use of physical resources for the benefit of the present generation balanced with full conservation for the benefit of future generations. Yet, it is a full, not a lesser, use of physical resources that the region must strive for because of its need to achieve a higher standard of living. It must be emphasized, moreover, that not *full use* but *abuse* is the enemy of conservation. Conservation may be defined, not as abstinence for the sake of posterity, but as living on a replaceable flow of goods rather than on stored-up capital. It is thus the distinction between the cropping and the mining of resources.

[1] *After Defense, What?* National Resources Planning Board, 1941, pp. 3, 5.

It is fortunate that in most of its resources the agrarian Southeast is capable of developing a flow economy rather than a store economy. The annual increase of flocks and herds and the growth of crops, like the flow of waterpower, comes as an increment from Nature without diminishing its capital store. Good conservation practices may help to give higher yields for the present and yet conserve nature's capital endowment for the future. Mineral resources, however, must be regarded as a store, for a mine once rifled is not replaceable. The flow economy of organic life is also violated when resources of virgin forests, fisheries, and even soils are cleared out thoughtlessly. Although the two concepts tend to shade into each other, the idea of a flow versus a store of energies and resources is necessary in allocating their present and future uses. Water power is accepted as a perfect example of the use of a flow of energy, but if the reservoir is allowed to silt up it becomes an example of the store economy, for it loses each year a part of its original capital of stored-up energy. With the utilization of scrap iron, however, we are developing a continuous flow of metal resources to supplement the depletion of ores. While this process cannot extend to the conservation of coal and oil, the transition to the use of water power makes possible a greater use of energy on the basis of a flow of resources.

Plans for future development in the Southeast will thus attempt to provide for greater utilization and conservation by increasing the flow of energy and resources. Restoration of soil fertility and further extension of soil conservation practices are necessary to provide a continuous flow of agricultural production; further extension of scientific forestry in private and public holdings is necessary to provide for the continuous production of timber resources. Those who plan for wildlife conservation realize that the stock of game will never again be large enough to admit of its use as an essential food resource. Here the problem is one of building up natural wealth to the point where the annual increase of game may be used for the recreation of hunters and fishermen. Scientific forestry, on the contrary, is not reduced to the assumption that lumber can be provided only by depleting all the resources of virgin timber. Continuous operation of forest resources and varied uses under sustained yield management appear entirely feasible. The region's greatest problem in the field of conservation of resources is that of soil erosion—a loss that unchecked would threaten the whole basis of the flow economy.

The Future of Human Resources

From this view of our natural resources, we come to consider our population as human resources, actual and potential. While population in itself is to be regarded as both the ultimate source and beneficiary of all resources, there must obtain a balance between the physical and human resources. This balance has been called the man-land ratio. The Southeast has a high birth rate, and the man-land ratio is higher than in any other region of our country. When population presses too heavily on land and its developed resources, there is danger that it will encroach on its store of natural wealth and thus undermine the flow economy and progressively lower its standard of living. The attainment of higher levels of living through the correction of the man-land ratio in the Southeast may stem from the following developments.

Opportunity for Migration Outside the Region.—Regional variations in resources, productivity, wages and income exist throughout the United States. It is normal that labor should flow from areas where high fertility and low wages prevail to areas of higher wages and increased economic activity.

Opportunity for Migration Within the Region.—Similar movements from country to town, from one city to another, from poor farms and barren rural sections to better farms and sections, and in some cases from towns back to the country will serve to bring about a more efficient distribution of population within the Southeast. If intraregional migration be effective, both the migrants and employers must make full use of the employment agencies of the United States Employment Service.

A Training of the Population in Higher Skills.—Congestion is greatest at the lower income levels. A better balance can be achieved by drawing many of these at and near the bottom to a higher level. This may be done the "American Way," by increasing their worth to society, by making them more valuable to their present and prospective employers. These higher skills may of course be developed through vocational education in agriculture and forestry as well as in industry and commerce.

More Capital Investment in Land Improvement.—Since the man-land ratio is unbalanced because of too many men and too little good land, one corrective is to increase the quantity of good land. Capital investment in such things as soil conservation, terracing, increased fertility, better farm buildings, improved oyster beds, better orchards, disease-resistant species of crops, and pure-bred livestock builds up the land part of the ratio and increases natural wealth quite as much as capital investment in a drainage project, a coal mine or a hosiery mill.

Greater Occupational Opportunity for the Negroes.—The South has been the traditional home of the Negro and agriculture his traditional occupation. In spite of original poverty and cultural disabilities, the Negro has

acquired property, set up small businesses and gained employment in many fields, yet the Negro has today the lowest income and the lowest level of material existence of any group in our country. Furthermore, indications are that in agriculture's present difficulties Negroes are being increasingly displaced from the land as tenants and croppers. Migration will relieve the pressure of poverty on the land only if the Negro finds full employment in the urban environment. In all urban areas Negroes now show the highest ratio on relief; and in many industries and trades the Negro is barred by custom from employment. Correction of present deficiencies in educational and employment opportunities is essential to a better future for the Negro people, and the full employment of Negro workers at the highest level they are able to attain is essential to the future visualized for the region and the Nation.

Fertility Rates.—Among the region's poorest families high fertility has meant more children than can be fed properly; irregular attendance at poor schools; an early dropping out of school, with ill-trained youth crowding into the unskilled low-wage occupations; early marriages and large families. Higher levels of income and increased education will improve the man-land ratio, for in the long run they are conducive to later marriage and lowered fertility.

Markets and Income.—To balance the satisfaction of needs against production at a high level will mean the balancing of increased incomes against expanding markets. An important requirement of the well-balanced economy desired for the future is a stable and growing market for goods. Some goods can and should be produced by the farmer, and, for that matter, by the urban dweller as well, for his own use. The deficiencies in poultry, milk cows and gardens throughout the Southeast proves that there is adequate room for expansion in production for home use. In many cases, this would not involve taking away a market for the products of other regions, since vast numbers of people are now for the most part not consuming adequate quantities of foodstuffs. More food and feedstuffs raised on the farm for the farmer's own use has long been one of the insistent recommendations of the region's agricultural agencies.

But by and large we produce today not for ourselves but for the market. Cash income on which to live is obtained by delivering goods or services to the market. The Southeast has long been a poor market because of the low income of its people who have been unable to deliver to the markets enough valuable products to bring them good incomes. Thus a vicious circle is maintained. Low value goods produced by our people net them low money incomes, which in turn make them weak buyers of their own and other people's products.

The building up of the Southeast as a market must therefore be accomplished by building up our incomes, through improved agricultural and forestry practices, more numerous and diversified industries, lower transportation costs, technical as well as general education, conquest of diseases, research laboratories, migration of population, to mention but a few. This will be a slow process, requiring patience, time, and the cooperative effort of numerous agencies, public and private.

The Southeast is of course only a part of the great American market, indeed of the greater world market. Better economic conditions in the Nation and the world create greater demand for Southeastern products, better prices and more purchasing power for our people. In turn, improved markets outside the region react to create improved markets within.

The Future for Agriculture

More has been written about the region's agriculture than any other of its problems. At present farm prices and agricultural incomes are upheld by wartime demands and a system of government loans and restriction of staple commercial crops. The attainment of a better future depends on further shifts from unneeded staples to the production of food and feedstuffs that will raise the level of home consumption and supply nearby markets. Just how wise it is in normal times to specialize on the production of export staples, such as cotton and tobacco, to the exclusion of other commodities, depends on a complex array of factors. When the world is peacefully pursuing the maximum production and exchange of wealth as its reasonable and dominant aim, specialization usually pays well. When, on the other hand, the smooth flow of exchanges of goods through the great markets is interrupted by war, by the turn of the business cycle into depression, by the rise of totalitarian economics which place national self-sufficiency above wealth-making, then reliance wholly upon the production of specialized goods ceases to be profitable. The outside markets on which we depend become demoralized, may even disappear altogether.

A return to such international trade as was prevalent in the nineteenth century is not a certainty upon which the region can definitely count. At least, the production of our traditional, specialized commodities for export, principally cotton and tobacco, should be brought more nearly in line with national requirements. And this in turn means shifting many acres, workers, commissaries, gins, warehouses and wharves into other lines of work. The middle of the twentieth century must reverse that "rush into cotton" which characterized the mid-nineteenth century.

Many farm enterprises now seem too small to provide a high level of living. The continued increase in industrial activity will reduce the number of marginal farmers, increase the size of farms, and furnish nearby markets with the fruit, dairy and livestock products taking the place of export staples. Further reform of the tenant-lease system to provide a more stable tenure is necessary to further the change from cash crops to subsistence and general farming. Wherever possible, tenancy should be replaced by ownership, made more efficient by cooperative practices.

Migration of farm youth will continue and should be aided by the training necessary to enable them to make the transition from agricultural to industrial pursuits. The problem of a changing agriculture has already been met in the displacement of tenants in certain areas where the transition to livestock farming or mechanized farming is underway. Wherever this population proves too old and unadaptable to be absorbed in highly competitive industry, it will be found necessary to continue rural relief. Youth, however, can be expected to make needed transitions. The further equalization of educational opportunity, especially in rural areas, is necessary in the interest of needed occupational changes. It may prove possible to retain much of the older population on the land; State and Federal governments should take every opportunity to do so through public forests, purchase of submarginal lands, waterpower projects. They must also provide for the mobility of farm youth through vocational training in NYA, CCC, or by similar means.

Public Policy and Human Resources in Industry

In the quests for higher levels of income and higher standards of living, the Southeast has turned to industrial development. Regional variations in wages exist throughout the United States, but the Southeast especially has come to be known as the region of low wage levels. There are many reasons for low wages in the Southeast, but presumably they derive mainly from large population increases, the pressure of labor seeking escape from an overcrowded agriculture, and the population's lack of training in the industrial skills.

An important factor in the better-rounded economy we desire for the future is a well-balanced labor supply, balanced as between skilled and unskilled; among the various branches of the skilled; between male and female; between white and colored; between rural and urban. Either too many or too few skills are available in different areas; rural labor is idle much of the time though needing badly the goods and services that work would provide. Some industries employ many men and few women; others have women working steadily but men idle on the streets. Negroes are confined to a few vocations and are willing to take those jobs open to them at any wage.

One of the deterrents to manufacturing coming into the Southeast has been the lack of skilled mechanical labor, which may be quickly remedied in vocational training. It is true that the machine age has not been close to a great many of our population. It is also true that our system of education has placed too little emphasis on manual training, shop work, agriculture and home economics. To move actively into a technological industrial system will require trained technologists in the upper reaches and skilled workers in the lower. Our educational system has a great responsibility in preparing youth for the coming of industry into the South.

Our hopes for future development include a higher wage level and greater economic security for our working population. In its quest for a high level of income, the Southeast faces the question of low wage levels, which will not be easily changed. In terms of balancing needed consumption with potential production, this tends to establish the balance at a low level. Our region may not soon be able to change these conditions, but it can establish goals toward which to work and make ready a day when rural poverty will no longer be an inducement to outside industrial capital.

In an effort to conserve human resources and maintain national standards, the Federal Government has set up certain levels below which it cannot and does not allow the States to fall. Programs of social security and unemployment compensation, together with Federal aid to public highways, to vocational and agricultural education, all set up minimum standards. The Fair Labor Standards Act set up minimum wages and maximum hours of work to which industries must conform, if their products are to move in interstate commerce.

Three corollaries as to future industrial development in the Southeast seem to follow from the assumptions behind the Fair Labor Standards Act. First, while standards affect only minimum wages they will in time come to be felt throughout the whole level of wages and skills. Secondly, if Southeastern industry and labor are to profit in national competitive markets they must be equal in efficiency and productivity to any in the Nation. Third, firms on the margin of bankruptcy will not long be able to forestall the consequences of inefficiency by recourse to the payment of substandard wages. When such firms fail, their laborers and their share of production will be taken over by more efficient firms. Higher standards, it is now generally recognized, offer the one hope of disposing of industrial products in mass markets once war activities cease.

There remains the problem of those who will be unemployed at a high level of economic activity. In our national policy, the problems of those who grow too old to work, those who are temporarily unemployed, and those who for various reasons are unemployable are met in the program for social security. In this situation, as in the Fair Labor Standards Act, we can no longer depend upon the assumptions prevalent in classical economics as to the unregulated effect of supply and demand on unprotected units of labor. By action of the State, the political citizen is now an economic citizen with certain rights of economic security underwritten by the State.

In the enactment of laws providing for unemployment compensation, old-age insurance, and the provision of relief and public work for the unemployed, we have abandoned laissez-faire economics to return to the older conception of political economy. The wealth of the Nation is pledged to a collective underwriting of the economic welfare of citizens at certain minimum standards. This, it must be realized, makes national-regional planning imperative in the economic sphere. Unemployment is now accepted as a risk to our total national security. To support insurance against unemployment on the part of the few requires a high level of employment among the many. To support old-age retirement funds for the increasing numbers of the aged will require a continuing high level of national income. These conditions are worth reviewing in order to emphasize the task that our national policy has assumed in continuing high levels of employment, productivity and total national income. With its solvency at stake in carrying out its guarantees of security to its citizens, it is not enough to hope for continued employment and high national income. These conditions can be achieved only by earnest effort, informed judgment and intelligent foresight.

The Southeast will continue its movement toward industrialization, but the means will differ widely from those once advocated. Artificial inducements to increased industrialization through municipal subsidies in the form of free factory sites, tax exemption, and outright subsidy have not proved their worth in the region. Low wages, moreover, will come to count less than high productivity. A certain normal growth of industrialization continued throughout the depression and is certainly to be expected in the future. The Southeast can reasonably expect to continue increasingly to process its raw materials to meet the rising demand of its own regional markets. In certain products, it has shown its ability to manufacture for the Nation and, with further equalization of class freight rates where these are shown to be discriminating, it will have the opportunity to expand these markets. Increased facilities for financing regional industry and small business will be needed in the post-war period, particularly among small business which was hard hit by priorities and shortages of necessary materials and was unable to obtain war contracts.

It is in light of the goals delineated in the foregoing discussion—the goals for the economic development of the region as a whole, for the future of physical and human resources, of markets and income, of agriculture, and of public policy—that the several chapters in Part II of this report devoted to regional development programs in several functional fields should be read. In the practical applications of the suggestions which these various statements present, much misunderstanding can be avoided through the realization that no drastic choices on the "all or none" basis need be made. We do not have to choose all-out migration, all-out industrialization, nor even all-out diversification to the exclusion of staple crops. While we seek to improve agriculture, we shall also seek to make the best use of industry and of migration opportunities. The goal to be sought and the touchstone of development is higher utilization of resources and higher standards and levels of living for the total population.

At the end of America's first war 166 years ago the statesmanship of the colonial South gave to the Nation the conception of unity and liberty for which 20 years ago and again today it is fighting in theaters of war abroad. The materials presented in the remaining sections of the report make it clear that there is abundant opportunity for the economic statesmanship of the South, following the present war, to set an example for the Nation in securing and maintaining in this region "an ever-increasing release of the powers of human nature, in the service of a freedom which is cooperative and a cooperation which is voluntary."

AGRICULTURAL DEVELOPMENT[1]

The Agricultural Situation

In Southeastern regional development, agriculture occupies a position of critical importance as the center of the region's major maladjustments. Roughly half of the people in the seven Southeastern States are dependent directly upon agriculture for their livelihoods, but the type of farming characteristic of the region has suffered from its own limitations and from the instability of world markets upon which it has been so largely dependent. The region's ability to provide adequate food, clothing, and shelter even for itself has been seriously impaired.

Long before the plight of the region's agriculture began to draw the attention of the rest of the Nation, intelligent leadership in the Southeastern States had been pointing out that much of the farm land had been tilled for 100 years or more, under conditions which have led to extensive soil erosion and depletion. It is generally recognized that the region includes that part of the Nation known as the "Old Cotton South", and while the plantation economy is largely gone, some of its vestiges remain under the system of tenancy; that tillable acreage and cash income per capita is low, making for low levels of living, much rural poverty and destitution, inadequate educational and community facilities, poor health, and malnutrition. Perhaps no other aspect of the region's economic life has enlisted such wide interest and activity as the rehabilitation of its agriculture. The schools, the churches, service clubs, the press, industrial and business organizations, railroads, State and local government agencies, are among the many forces which, especially since the collapse of 1929, have been earnestly working toward that end. Important gains have been made. Much further progress is necessary and possible. The current war period has brought opportunities for more rapid progress.

The rehabilitation of the region's agriculture is contingent upon many factors outside of agriculture proper, but essentially it means an increase in the level of living and changes in economic pursuits for at least half of the region's population. Until this has transpired, progress in other aspects of economic life within the region will bear little relationship to a healthy regional economy and will only sharpen existing disparities and postpone an inevitable adjustment. Among those portions of its population presently existing at substandard levels, the region, and the Nation as well, will find the greatest remaining market for the products of farm and factory, and a vast reservoir of manpower capable of producing wealth in far greater measure than is true in its present state of utilization.

In the future economy of the region, agriculture will always play a dominant part. Aside from the overshadowing importance of cotton and tobacco, it is certain that no region of the Nation produces a greater variety of farm products than the Southeast. With substantial reduction in farm population, the region's wide range of soil types and of rainfall and temperature afford opportunities for widespread diversification which would provide a level of living as high as any in the Nation.

Income from Agriculture

Cotton, tobacco, and Government payments are the most important sources of cash farm income in the Southeast. Carolina receives half its farm income from soil-depleting tobacco, and 43.9 percent of Mississippi's cash income comes from cotton. For the region as a whole, which includes Florida where these percentages are low, 39.0 percent of the total cash farm income comes from tobacco and cotton. As table 1 indicates, income from all classes of livestock amounts to about the same proportion of the total income as does cotton; and Government payments amount to about as much as does the income from dairying and poultry combined. Livestock and livestock products account for slightly over one-fifth of the total regional income but over half the total national farm income. (Table II). Government payments constituted 14 percent of the total farm income in the region in 1939 as contrasted with 9 percent for the Nation. Tennessee received the greatest part of its total farm income from crops and from livestock and livestock products, the latter because of its better pastures and higher feed-grain yields. Florida received the smallest part of its total cash farm income from livestock and livestock products as well as Government payments. The citrus and truck crop enterprises provided the bulk of Florida's farm income. (See also Table III).

Usual net cash farm income (the amount of money actually available for a family's use after farm expenses have been paid) is very small over most of the region. (See table IV.) The income of the large farms is little, if any, better in many cases than that of the smaller

[1] Prepared by the staff of the Atlanta Field Office, National Resources Planning Board, with the assistance of Dr. William A. Hartman, Charles R. Sayre, and James C. Downing of the Southeastern Area Office, under the leadership of Dr. Wilhelm Anderson of the Washington Office, Bureau of Agricultural Economics, U. S. Department of Agriculture.

TABLE I.—*Percentage of total cash farm income from farm enterprises and Government payments, Southeast region, by States, for 1938*

State	Milk and milk products	Chickens, eggs, and turkeys	Cattle and calves, beef and veal	Hogs	Sheep, lambs, mutton, and lamb	Tobacco	Cotton	Government payments	All other	Total
North Carolina	5.15	4.33	1.93	4.52	0.06	49.56	7.19	7.00	20.26	100
South Carolina	6.41	3.48	2.59	4.62	.02	21.67	28.49	13.70	19.02	100
Georgia	6.74	4.14	2.87	6.11	.01	11.91	23.43	12.80	31.99	100
Florida	7.50	4.01	2.40	4.03	.02	4.92	1.11	2.40	73.61	100
Tennessee	11.41	8.34	9.85	8.81	.11	10.08	15.90	8.90	26.60	100
Alabama	6.31	4.93	4.65	6.66	.04	.06	37.15	15.90	24.30	100
Mississippi	6.60	3.65	4.97	3.52	.04		43.90	13.50	23.82	100
Region	6.98	4.68	4.08	5.38	.02	17.04	21.95	10.40	29.47	100
United States	17.29	9.55	14.17	10.83	1.99	3.35	6.36	6.00	30.46	100

Source: *Agricultural Statistics, 1940.* U. S. Department of Agriculture.

farms considering the number of families which must be supported. Incomes with the 1943–45 price assumptions will be more satisfactory for families of large farms because of the greater volume of products for sale. However, in Lee County, Ala., for example, three-fourths of all the farmers operated small- or medium-sized farms, with the remaining one-fourth having large farms.

Consideration of the small amount of money usually available for these farm families leaves little doubt that outside sources will have to provide a great deal of additional assistance in the form of management, development loans, farm plans, and in other ways as pointed out in other sections of this statement.

Changes Since 1930

Twelve years ago the situation was even more unfavorable and the shifts that have taken place since that time have been mainly beneficial. According to the 1940 *Census of Agriculture* the number of farms in the region has decreased in the previous decade over 100,000, or 6½ percent, and the average farm has increased in size from 69 to 81 acres, or 17 percent. (See table V.)

TABLE II.—*Percentage of total cash farm income from crops, livestock, and Government payments, Southeast region, by States, 1939*

State	Percentage of total cash farm income from—			
	Crops	Livestock and livestock products	Government payments	Total
North Carolina	76	16	8	100
South Carolina	67	17	16	100
Georgia	62	22	16	100
Florida	81	16	3	100
Tennessee	44	44	12	100
Alabama	50	26	24	100
Mississippi	61	19	20	100
Region	64	22	14	100
United States	38	53	9	100

Source: *Agricultural Statistics, 1940.* U. S. Department of Agriculture.

This is encouraging, since the farms have been too numerous and small to furnish an adequate living or to permit more extensive soil-saving crop practices. The average farm has only 28 of its 81 acres in cultivation, and it may be inferred that a great many farm owners and operators lack sufficient income to begin the soil-improving practices which are needed.

The reduction in the number of farms, combined with their larger average size, has meant fewer farmers. The number of white operators showed a small increase, 9,293, but the number of Negro operators decreased by 112,661, of which 111,563 were tenants (one-fourth of the total in 1930) and 1,098 were owners. Many of these have become farm laborers. Large numbers are on work-relief in the seven States. Others have moved to employment out of the region or to towns within the region. Reflected here are some of the social costs of improved agricultural conditions.

Another significant change during the past 10 years, and an encouraging one, is that farm ownership has increased 9.5 percent while tenancy has decreased 17.4 percent. The percentage of farms operated by owners is still less than that of tenants, but there has been a shift from 59.8 to 52.8 percent tenants and from 40.2

TABLE III.—*Cash farm income and Government payments, by States, Southeast regions, 1939*

[Thousands of Dollars]

State	Income from crops	Income from livestock and livestock products	Total cash income from farm marketings	Income from Government payments	Cash income and Government payments
North Carolina	$182,167	$38,484	$220,651	$19,892	$240,543
South Carolina	77,761	19,458	97,219	17,902	115,121
Georgia	97,413	35,285	132,698	25,794	158,492
Florida	98,403	20,103	118,506	3,865	122,371
Tennessee	58,470	58,195	116,665	15,713	132,378
Alabama	58,011	29,593	87,604	27,259	114,863
Mississippi	102,196	32,297	134,493	34,330	168,823
Total region	674,421	233,415	907,836	144,755	1,052,591
Total United States	3,237,996	4,494,541	7,732,537	807,065	8,539,620

Source: *Agricultural Statistics, 1940.* U. S. Department of Agriculture.

TABLE IV.—*Usual net cash incomes, typical farms in selected counties, Piedmont subregion, assuming 1935–39 price relationships*

County	Size of farm		
	Small	Medium	Large
Lee County, Ala.	$90	$282	[1] $770
Greene County, Ga.	94	184	[1] 317
Edgefield County, S. C.	120	240	[2] 3,033
Gaston County, N. C.	103	421	[3] 781

[1] Operator and 2 cropper families.
[2] Operator and 5 cropper families.
[3] Operator and 1 cropper family.

to 47.2 percent owners between 1930 and 1940. Almost half of the region's tenant farmers continue to move each year. Farming tools, furniture, canned goods, and other valuables are damaged or lost at each moving. But more important, this stifles the growth of any continuing interest on the part of the tenant in building up the soil and farmstead into an efficient producing unit.

In the 10-year period 1930 to 1940, farmers in the Southeast made a number of pronounced production shifts. (See Figs. 17–20.) For example, the reduction in workstock numbers, due to increased mechanization, has released considerable acreages of corn, hay, and oats for feeding other classes of livestock. Accompanying a 44 percent reduction in cotton acreage and a 26 percent reduction in production, hay acreage increased 111 percent and oats acreage increased 193 percent in the 10-year period. The increase in oats acreage was from a comparatively small base. It should be observed that cotton production did not decrease in direct proportion to cotton acreage. By virtue of better care of the crop, heavier fertilizer application and the elimination from production of the poorest cotton land, average yields have increased by approximately 37 percent in the past 10 years, a very definite gain in productivity. The net result, in most cases, has been a larger net income from cotton, even with the reduced acreage. The lifting of production control quotas for tobacco in 1939 resulted in a considerable increase in tobacco acreage and production over that for the years immediately preceding and for 1930.

The land taken out of cotton production has not all been used to best possible advantage. As mentioned above, part of it has been put in hay, part in oats and part in a few other miscellaneous crops. The census indicates that at present there are approximately six million acres of idle cropland in the region; part of this is in lespedeza for soil conserving purposes primarily, and may be turned under as a green manure crop. It should be remembered when discussing idle land that there was a considerable amount of it in 1930, before

TABLE V.—*Changes in farming in the Southeast, 1930 to 1940* [1]

Items	Unit 1,000	1930	1940	Percent change 1930–40
Total population	Number	16,559	18,426	11.3
Farm population	Number	7,116	7,078	−.5
All land in farms	Acres	108,444	118,898	9.6
Number of farms	Number	1,568	1,465	−6.6
Average acreage per farm [2]	Acres	69.2	81.2	17.3
Cropland harvested	Acres	39,555	41,153	4.0
Cropland harvested per farm [2]	Acres	25.2	28.1	11.5
Cropland, idle or fallow	Acres	7,345	5,976	−18.6
Woodland	Acres	40,617	45,077	11.0
Land available for crops	Acres	55,755	60,758	9.0
Number farm owners	Number	631	691	9.5
Number farm tenants	Number	937	774	−17.4
Number white owners	Number	532	593	11.5
Number white tenants	Number	472	421	−10.8
Number Negro owners	Number	99	98	−.9
Number Negro tenants	Number	465	353	−24.1
Average value of farms [2]		$2,577	$2,341	−9.2
Workstock and colts	Number	2,499	2,235	−7.2
Total cattle	Number	4,171	5,457	30.8
Cows and heifers milked	Number	1,915	2,139	11.7
Sheep and lambs	Number	660	540	−18.2
Hogs and pigs	Number	3,715	5,394	45.2
Chickens	Number	36,462	38,612	5.9
Corns for all purposes	Acres	14,908	18,148	21.7
Corn for grain	Acres	14,417	17,679	22.6
Do	Bushels	232,711	239,087	2.7
Wheat threshed	Acres	734	1,068	45.5
Winter wheat	Bushels	7,037	12,700	80.5
Oats threshed	Acres	256	751	193.4
Do	Bushels	5,349	18,195	240.2
Oats cut and fed unthreshed	Acres	782	760	−2.8
Rye threshed	Acres	87	131	50.6
Do	Bushels	647	1,160	79.3
Cotton	Acres	15,765	8,858	−43.8
Do	Bales	6,671	4,966	−25.6
Tobacco	Acres	1,029	1,166	15.3
Do	Pounds	741,389	1,059,045	42.8
Irish potatoes	Acres	187	261	39.6
Do	Bushels	17,484	23,430	34.4
Sweetpotatoes	Acres	386	416	7.8
Do	Bushels	39,655	35,279	−11.1
Sorghum hay	Acres	106	148	39.6
All hay exclusive of sorghums	Acres	2,984	6,295	111.0
Do	Tons	2,945	5,646	91.7
Milk produced	Gallons	648,424	836,658	29.0

[1] Includes Alabama, Florida, Georgia, Mississippi, Tennessee, North Carolina, South Carolina
[2] Figures for these items are actual numbers.

TABLE VI.—*Direction and rate of change, selected items in 5 Piedmont and Coastal Plains counties, 1930 to 1940* [1]

Items	Unit	Piedmont counties [2]		Upper and lower coastal plains counties [3]	
		Differential	Percent differential is of 1930	Differential	Percent differential is of 1930
Number of farms	Number	−1,645	−12.3	−2,729	−18.7
All land in farms	Acres	13,216	1.4	250,020	25.7
Average size of farms	Acres	11.2	15.6	21.5	39.3
Cropland harvested	Acres	591	.2	20,016	4.9
Cropland idle or fallow	Acres	−19,952	−20.1	−13,244	−25.6
Woodland in farms	Acres	22,910	6.6	99,909	27.6
Land available for crops	Acres	16,486	3.5	47,474	8.4
Horses and mules	Number	−2,704	−13.3	−2,146	−9.1
Total cattle	Number	1,646	5.7	12,378	79.5
Cows and heifers milked	Number	−106	−.6	2,778	38.3
Hogs and pigs	Number	5,519	34.8	27,783	59.6
Chickens	Number	13,775	4.4	32,144	11.3
Corn for all purposes	Acres	7,478	6.6	62,754	35.9
Wheat threshed	Acres	10,905	53.1	3,268	106.8
Oats, grain [4]	Acres	12,496	132.1	1,537	8.5
Cotton	Acres	−61,259	−50.2	−100,592	−56.1
Tobacco	Acres	−1,594	−9.2	−7,693	−12.7
Sweetpotatoes	Acres	885	43.0	682	18.4
Total hay	Acres	27,665	186.9	40,214	213.2

[1] Figures on crop acreages and yields relate to the preceding years, viz, 1929–39.
[2] Counties in Piedmont—Greene and Gwinnett, Ga.; Cabarrus, Caswell, and Gaston, N. C.
[3] Counties in upper and lower Coastal Plains—Bulloch, Houston, and Sumter, Ga.; Greene and Wilson, N. C.
[4] Includes cut ripe and fed unthreshed

agricultural adjustment programs came into being. Table V indicates, actually, a reduction in idle cropland of 19 percent from 1930 to 1940. This would indicate that not only has all displaced cotton land been put into some other crop, but that in addition part of the cropland idle before production control programs has been put to a better use. This is indeed a desirable trend.

Accompanying changes in crop acreages and production, there was also a shift in livestock numbers. All cattle increased by almost 31 percent but dairy cows increased only 12 percent, barely enough to furnish milk, at the same rate per capita, for the increases in total population of the area. Hogs were increased almost one-half over the 1930 figure.

Production rates in 1940 for all classes of livestock, as well as crops, were among the lowest in the entire country.

An outstanding regional deficiency which affects all farmers, but particularly cash farmers, exists in the fact that, despite the extensive area in farms and large numbers of individual farmers, the region is a heavy importer of foodstuffs. There is a lack of balance between the region's agriculture and the region's daily consumer needs. (This is parallel to the situation in manufacturing, which likewise shows bulky materials exported from the region, and an importation of finished consumer goods.) Large amounts of milk, eggs, cheese, butter, fruits, vegetables, fresh meats, are brought into the region from considerable distances, paying freight

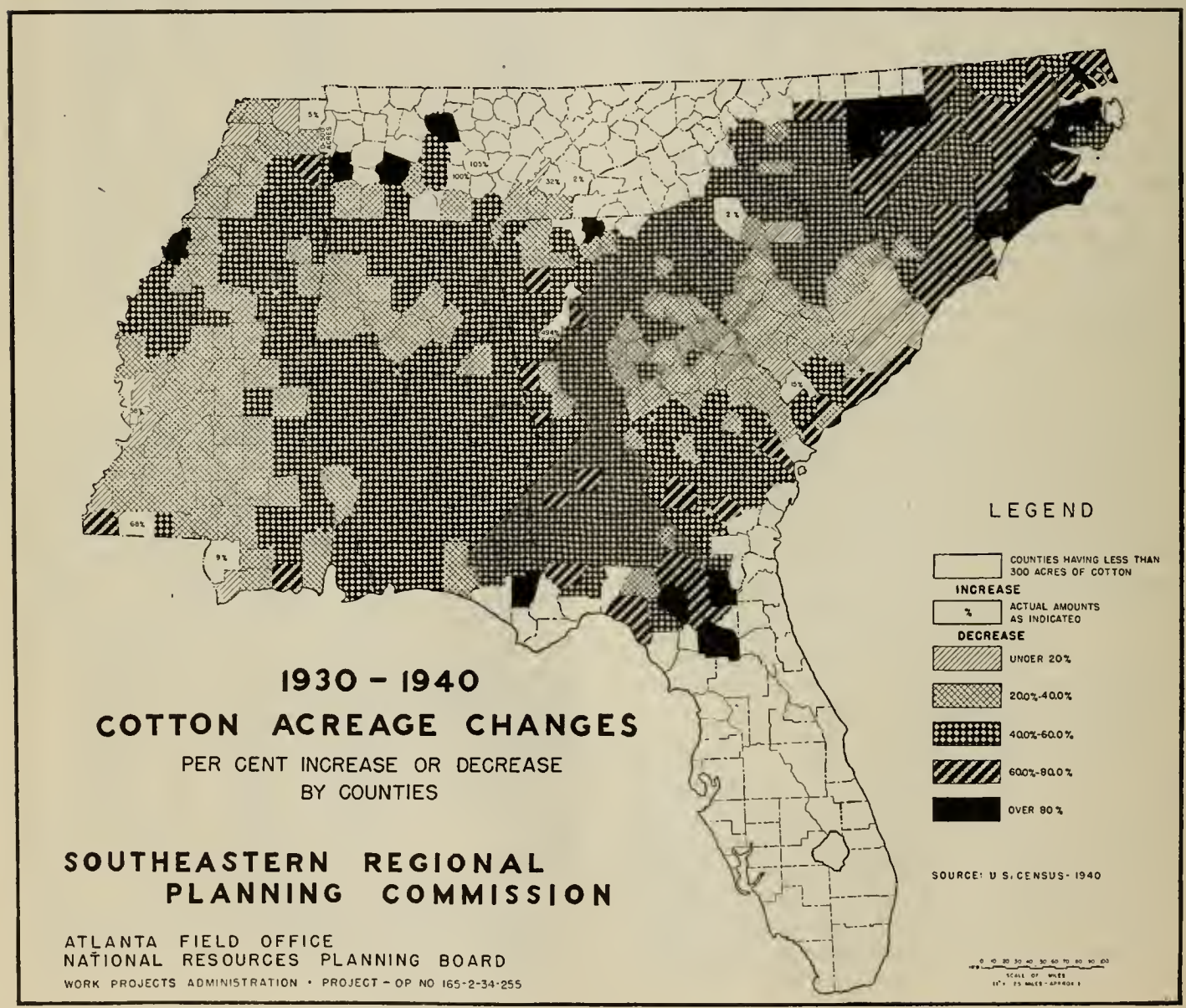

Figure 17

charge in the process, and often deteriorating in quality.

Considerable progress is being made toward a change in this situation. Table V shows that there was a 31-percent increase in the number of cattle in the region in the past 10 years—an encouraging sign to those who are urging less cotton, more cover and forage crops, and more livestock for the good of the soil. Many are beef cattle. The 10-year increase in gallons of milk produced was 29 percent, reflecting a vigorous new dairying development. Another move in the right direction is the 45-percent increase in the number of hogs. There has been a small but promising poultry development. Taken together, all such developments reflect the trends which brought the 44-percent decrease in cotton acreage from 1930 to 1940, with a decrease in cotton production of only 26 percent, indicating improved fields, the retirement from cotton of less suitable lands and their conversion to pasture and livestock purposes. The trends have been and are being actively encouraged by the county and home demonstration agents, the extension services of the land grant colleges, the action agencies of the United States Department of Agriculture—the Soil Conservation Service, the Farm Security Administration, the Agricultural Adjustment Administration, the Farm Credit Administration—through soil conservation districts, farm plans, and through the cooperative State and county land-use

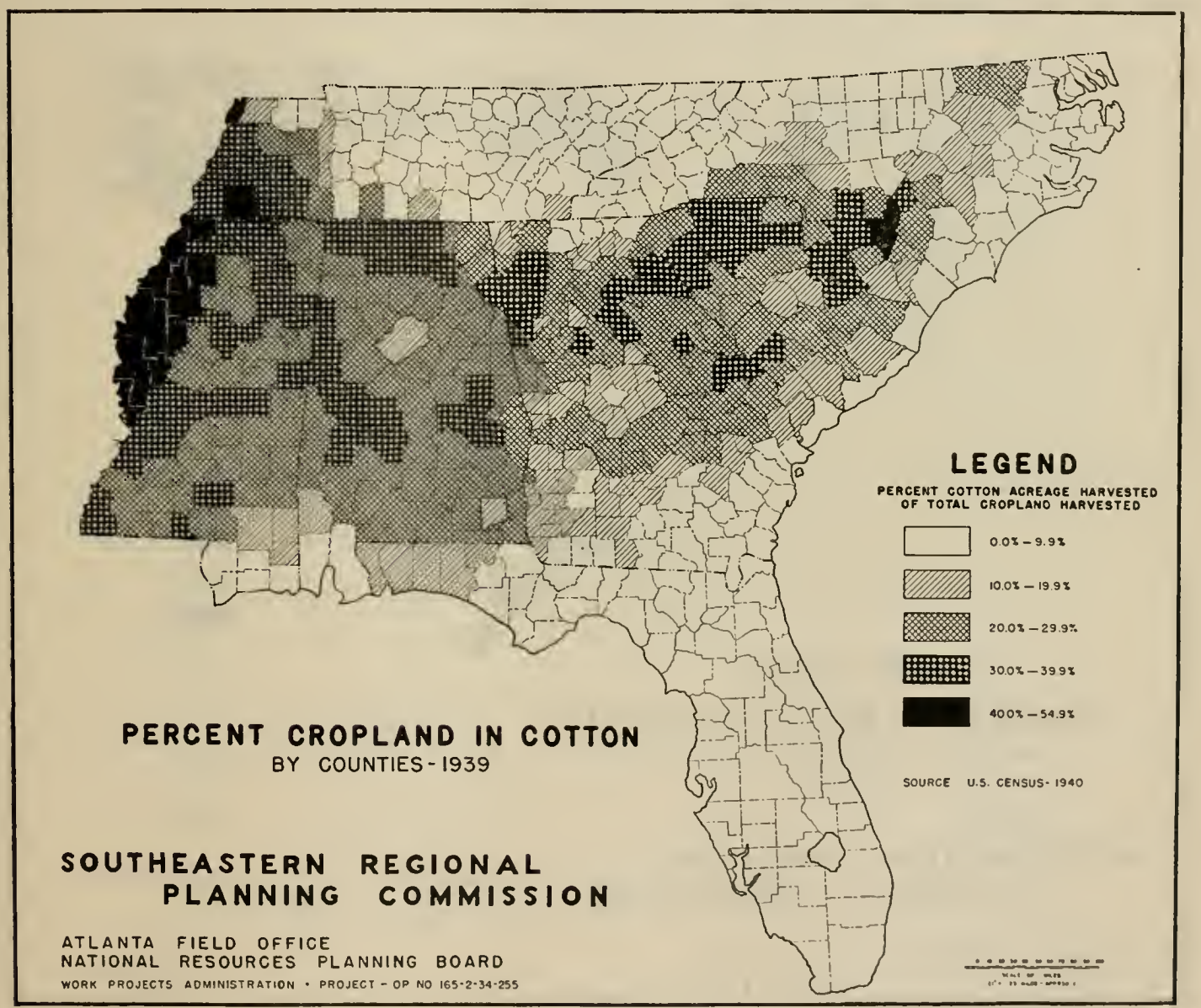
LEGEND
PERCENT COTTON ACREAGE HARVESTED OF TOTAL CROPLAND HARVESTED
0.0% – 9.9%
10.0% – 19.9%
20.0% – 29.9%
30.0% – 39.9%
40.0% – 54.9%
SOURCE U.S. CENSUS - 1940
PERCENT CROPLAND IN COTTON
BY COUNTIES - 1939
SOUTHEASTERN REGIONAL PLANNING COMMISSION
ATLANTA FIELD OFFICE
NATIONAL RESOURCES PLANNING BOARD
WORK PROJECTS ADMINISTRATION • PROJECT - OP NO 165-2-34-255

Figure 18

planning program which engages the joint leadership of the United States Bureau of Agricultural Economics and the State agricultural extension services.[1a]

These trends, protracted, will in time fill the gap in the region's consumer market, relieve food price levels, breed more processing industries and employment, improve diet, and also help redeem the soil. How far there is to go in the last regard may be seen in one striking fact revealed by the 1940 *Census*. The total of cash wages paid in agriculture in 1939 in the 7 States was $91,210,582. But the total expenditures of farmers for commercial fertilizer was $99,089,478, and for liming materials $2,126,602. The need for constantly replenishing the depleted soil with artificial fertilizer is one of the most difficult problems of agricultural improvement.

[1a] The Agricultural Appropriation Act for 1943, passed subsequent to the preparation of this statement, precluded the use of funds of the Bureau of Agricultural Economics for State and county land-use planning. Where the organization and program continue, it is without the assistance formerly provided by the Bureau.

Prevailing Farm Practices

Southeastern farmers, in varying proportion from area to area, employ one of two prevailing economic modes or "systems," although no one farm may be completely devoted to either. These systems are: (a) farming of the self-sufficing, nonmarket or subsistence type, and (b) the raising of cash crops for the market.

The self-sufficing or "production for use" type of

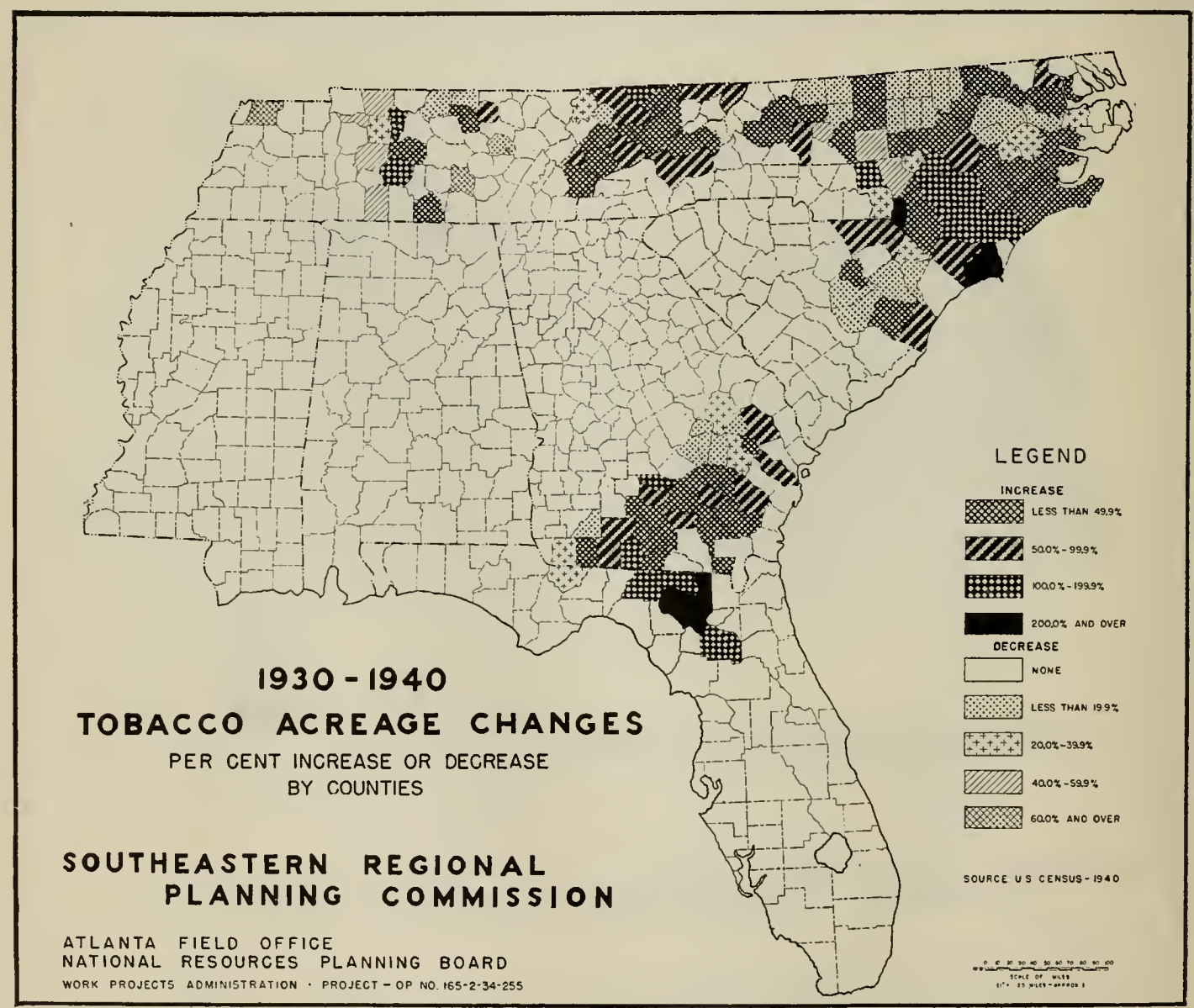

Figure 19

agriculture, although it is widespread in the region, is less significant than the cash-crop economy. It can be treated only by general observations and scattered statistics. Numerous small farmers, especially in the hilly districts, eke out their livings by combining a very small cash income with a real income in the form of corn and hogs raised for family use, the bartering of eggs and other small produce for coffee and salt at the "rolling store," and not infrequently by the products of hunting, fishing, and some handicraft. Over extensive areas of the region the value of goods produced and consumed on the farm is known to constitute over half of the total real farm income. This primitive type of subsistence farming is associated in many cases with land ownership, to be sure, but also with the cabin, the meager corn patch, and the undernourishing diet. However, this subsistence population has contributed a cheap and abundant labor supply to industry and, when given the opportunity, has demonstrated its ability to acquire trade and mechanical skill and has become an industrial asset.

On the other hand, the farmer who derives most of his income from the sale of his products for cash, and buys the goods and services he needs, presents greater problems that must be solved before the Southeast can prosper. Since these cash-crop products in the Southeast are largely cotton and tobacco, prices are dependent not on the local, State, or even regional market, but upon world market conditions. The region's cash-crop farmers are in competition with the exports from low-

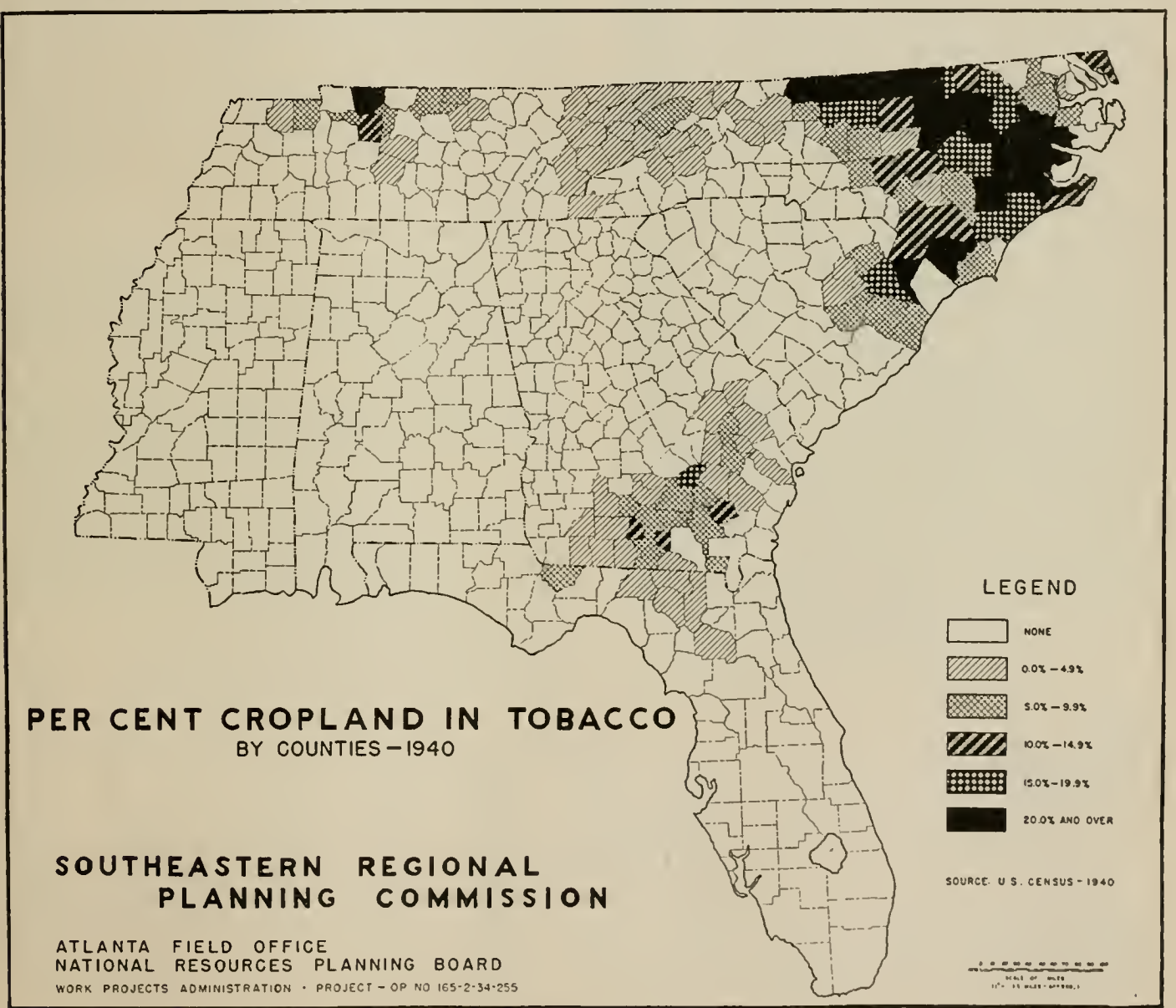

Figure 20

TABLE VII.—*Cash income from farm marketings in the Southeast and in the United States, 1940*

Area	Number of farms	Cash income from farm marketings	Cash per farm from farm marketings
United States	6,096,724	$8,354,104,000	$1,370
Region	1,464,622	888,604,000	607
Alabama	231,801	89,612,000	387
Florida	62,245	109,418,000	1,758
Georgia	216,033	143,629,000	665
Mississippi	291,092	114,540,000	393
North Carolina	278,276	206,892,000	743
South Carolina	137,558	99,230,000	721
Tennessee	247,617	125,283,000	506

Source: U. S. Census of Agriculture, 1940.

TABLE IX.—*Action ageney contacts with farmers in selected counties, by subregions, Jan. 1, 1941*

Subregions	Selected counties	Total operating units (approximate)	Type of contact			
			Current farm plans [1]		Loans for individual farm operations	
	Number	*Number*	*Number*	*Percent total*	*Number*	*Percent total*
Piedmont	5	8,322	2,216	27	2,792	34
Atlantic Coastal Plains	5	6,711	755	11	1,582	24
Coastal Flatwoods and citrus fruit and truck	2	3,950	258	7	773	20
Black Belt of Alabama	1	2,280	498	22	(2)	(2)
Sandhills	2	4,957	469	9	1,620	31

[1] Farm plans made in cooperation with the Soil Conservation Service and the Farm Security Administration.
[2] Data not available.

wage countries which may simply be dumping their products for whatever price they will bring. This was not always so; in 1916–17 the United States grew three-fifths of the world's cotton. But every year since 1933–34 the combined crop of foreign countries has exceeded that of the United States.[2] America no longer dominates the world's cotton markets. Since 1920, despite the helpfulness of production control in bringing about the 44 percent reduction in cotton acreage and the 26 percent reduction in the Nation's cotton production, more cotton is grown than is used in two out of every three years. Market demands for cotton have shifted to intermediate and long-staple lint. Much of the accumulated stock is made up of short-staple lengths. It is difficult to anticipate whether new-found uses for cotton will offset its replacement by other fibers in some of its former uses. The trends in tobacco consumption have been more favorable.[3]

The farmer who sells for cash is under a further handicap which characterizes the fixing of almost all agricultural prices, once beyond the local curb market. Modern prices are rarely the result of the free play of the forces of supply and demand, with equal bargaining power on both sides. More often they are "administered" by the organized buying side. The farmers of this region are prevailingly unorganized and at a disadvantage in bargaining with buyers and brokers. For this reason as well as the more general workings of competition, prices are low for farm products and raw materials, essential as they are, and it takes a large amount of them to pay for goods of higher value. (See table VII.) [4]

Federal Farm Assistance Programs

The desirable production shifts of the 1930's were closely related to the action programs of various agencies of the United States Department of Agriculture. The production control program, as has been

[2] *Round the World With Cotton*, Bulletin of the Southern Division, Agricultural Adjustment Administration, U. S. Department of Agriculture, 1941, pp. 37-39.
[3] *Agricultural Statistics 1940*, U. S. Department of Agriculture, 1940, p. 173.

[4] Prices of certain types of goods seem to fluctuate more sensitively than prices of other types of goods. Most sensitive are raw materials, agricultural products, nondurable goods, and those in which competitive market conditions prevail. Insensitive prices are found on the whole in manufactured goods, durable goods, differentiated products and especially in goods with "administered prices." (See National Resources Committee, *The Structure of the American Economy, Pt. I—Basic Characteristics*, 1939, p. 139.) The products of the Southeast are very largely in the most sensitive class. This means that in depression their prices fall abnormally low; under exceptional conditions of demand and supply they may rise considerably, but they always fluctuate more and are more unreliable and unpredictable than the prices of the other type of goods. This introduces serious hazards into planning and producing these price-sensitive goods.

TABLE VIII.—*Number of various types of loans and agreements, Southeastern Region by States, 1940*

	South Carolina	Georgia	Alabama	Florida	Tennessee	Mississippi	North Carolina	Total
Types of loans:								
Farm Security Administration:								
Rehabilitation loans	11,385	21,727	24,312	7,629	9,655	(1) 27,331	14,841	116,880
Tenant purchase loans	729	1,756	1,641	115	561	634	787	6,223
Rehabilitation projects	407	539	693	191	347	(2)	506	2,683
Farm Credit Administration:								
Land Bank loans	6,798	12,675	20,155	4,483	13,580	16,885	12,028	86,604
Land Bank Commissioner loans	9,002	14,870	10,975	5,357	10,550	10,756	13,283	74,793
Production credit loans	10,586	12,456	(2)	2,628	5,344	(2)	18,333	49,347
Feed and seed loans	14,132	13,948	(1) 3,575	783	312	(1) 9,106	12,505	54,361
Total loans	53,039	77,971	61,351	21,186	40,349	64,712	72,283	390,891
Type of Soil Conservation Service agreements:								
District agreements	4,049	4,624	2,578	363	19	(2)	5,437	17,070
Camp agreements	2,170	852	2,070	0	366	(2)	3,424	8,882
Project agreements	1,471	1,141	966	244	232	(2)	2,850	6,904
Total agreements	7,690	6,617	5,614	607	617	(2)	11,711	32,856

[1] Jan. 1, 1940.
[2] Not available.

noted, facilitated these changes importantly. Nearly all the farmers in the region are cooperating with the AAA program in carrying out production adjustments. This program reaches an estimated 90 percent of the 1,500,000 farm operators in the region. Its importance is indicated not only by the production shifts which have taken place but also by the large proportion of total farm income which government subsidies constitute. (See table II.)

The Farm Security Administration is reaching many low-income farmers in the region. A total of approximately 125,000 loans in force in the region during 1940 is ample evidence. (See table VIII.) FSA also provides technical assistance in addition to loans, and makes outright grants where catastrophic conditions (crop failure, floods, etc.) make that necessary.

The Farm Credit Administration had approximately 265,000 current loans in 1940, divided between Land Bank loans, Land Bank Commissioner loans, Production Credit loans, and Feed and Seed loans. This service has been invaluable in assisting farmers to keep their farms and make desirable production adjustments.

The Soil Conservation Service had in 1940 (excluding Mississippi) a total of approximately 33,000 farm plan agreements in force. Of this number, 17,000 were district agreements, 9,000 camp agreements, and 7,000 project agreements.

Conditions within certain subregions necessitated a greater concentration of farm plans in those areas than in others, as indicated by table IX. The greatest concentration of farm plans was in the Piedmont where farm plans were in existence for approximately 27 percent of all operating units.

Agricultural Planning

The significant and beneficial shifts in farming stem in part from the participation of thousands of the region's farmers in agricultural planning.

For a number of years the U. S. Department of Agriculture has been sponsoring the Nation-wide development of State, county, and community agricultural planning committees, concerned with all aspects of rural life, from land use and conservation through nutrition and education, directed toward the full and best use of the productive resources of agriculture.

As of June 1941, these cooperative groups included about 122,000 farm operators and 18,000 agricultural program administrators, technicians, and educators, engaged in the inventory of human and physical resources, the definition and practical solution of farm problems, the outlining of action programs, and the delegation of responsibility for getting required work done.

State and county agricultural planning committees are composed of heads of Federal, State, and county agencies and organizations concerned with the welfare of farm people, plus farm men and women representing the various type-of-farming areas within the State and the various communities within the county. In addition to the county agricultural planning committee, each county is organized into a number of community agricultural planning committees, with representation from each neighborhood within the community. The community committees are made up wholly of farm men and women and are organized on the basis of sociological studies of the natural social grouping of the farm people.

Within the United States Department of Agriculture, responsibility for over-all agricultural planning for the Nation, as well as for the States, counties, and communities, is vested in the Bureau of Agricultural Economics, in cooperation with the various agencies of the Department.[5] Within the States, leadership in agricultural planning is vested in the State agricultural extension services, through the State extension director and district and county extension agents, in cooperation with the various Federal and State agencies concerned with the welfare of farm people.

The State extension director functions as chairman and the State representative of the Bureau of Agricultural Economics as secretary of the State agricultural planning committee. An elected farmer functions as chairman and the county agent as secretary of the county agricultural planning committee. Farm men and women make up the officers as well as the entire membership of the community committee.

State agricultural planning committees have been functioning for several years in each State in the Southeast; county and community committees will have been organized in every agricultural county by the end of 1942. In November 1941 county agricultural planning

[5] See footnote 1a, p. 52.

TABLE X.—*Status of organization of county and community agricultural planning committees* [1]

	Committee organization completed		
	County committees		Counties with 1 or more community committees
	Number	Percent of all counties	
Alabama	59	88.1	32
Florida	14	20.9	15
Georgia	48	30.2	48
Mississippi	14	19.5	14
North Carolina	5	5.0	19
South Carolina	25	54.4	15
Tennessee [2]	2	2.1	2

[1] Compiled from data provided by the Bureau of Agricultural Economics.

[2] Active county committees were organized in each Tennessee county several years ago. Also, one or more special community committees were organized in each county for special TVA farm demonstration work. Community committee organization has not, however, been established from a delineation of natural neighborhood groupings.

committees were organized and actively at work in 167 out of 616 Southeastern counties. In each of 145 counties one or more community committees were at work. (Table X.)

On the basis of planning experience gained in the communities and counties of each State, as well as of the experience, skills, and knowledge gained by the land-grant colleges and the action agencies, each State agricultural planning committee, through various subcommittees, prepared and issued as of June 1, 1941, a unified agricultural program report for the State, embodying factual information on adverse conditions and opportunities for constructive action, and setting forth specific recommendations in light of the current war situation. (See below, Recommendations.)

The activity of thousands of farmers in long-range planning at a period when war is bringing major changes to the region's agriculture places the Southeast in a particularly strong position to make necessary post-war adjustments. Unlike the period following the first World War, Southeastern farmers will, in this instance, have grasped the meaning and nature of the impact of war on their farms and will have been consciously engaged in planning appropriate adjustments thereto well in advance of the cessation of hostilities.

Direction and Extent of War-Time Agricultural Adjustments [6]

Despite the progress of the 1930's in Southeastern agriculture, unutilized land, underutilized labor, and low cash incomes make continued adjustments imperative. As has been noted, in 1940 nearly 6 million acres, or an area about one-seventh as large as the harvested crop acreage, remained idle or fallow. The average "census" farm had less than 2 cows, 30 chickens, and 4 hogs and pigs. Production rates were among the lowest in the country, and pastures were for the most part unimproved and law in productivity.

Woodlands comprised 55 percent of the total land area in the seven Southeastern States in 1935, but this land was producing only 3.6 percent of the total value of farm woodland, crop, and livestock products.

The potentialities for food production in the Southeast are only partly realized at present and probably will not be fully realized despite the price rise stimulated by war and the strenuous efforts of farmers and professional agricultural workers to increase farm production in the program to make the Nation the larder as well as the arsenal of the democracies.

[6] The production adjustments and the framework of subregions within which they are presented here will be further refined during 1942 by agricultural specialists of the action agencies of the U. S. Department of Agriculture and of the land-grant colleges under the leadership of the U. S. Bureau of Agricultural Economics.

Expected production increases represent fairly large quantities of the various commodities. (See table XII.) These increases, however, are considerably short of quantities that would be produced if the agricultural resources of the region were utilized more nearly to capacity. Milk production, for example, could be expanded considerably in excess of the 13 percent expected for 1943–45, as the long-term goal contemplates an 80-percent increase over 1939 levels.

The "cash-crop" philosophy that has prevailed for so long will, without much doubt, be a restraining factor in increasing livestock numbers and production. This is especially true since cash-crop prices have advanced so materially and are expected to remain at comparatively high levels during the course of the emergency.

Farmer response to needed changes in agricultural production will not and should not be the same in all sections of the region. The need for differentiating the problems on a subregional basis becomes evident at once when one considers the fact that the fertility, topography, and other farming resources of different sections of the Southeast range from some of the best in the Nation to some of the very poorest. Unfortunately, there is a preponderance of the latter type. Wide variations between such subregions as the Southern Appalachian Limestone Valley and Basin and the Sandhills, for example, necessitate a consideration of production adjustment needs in terms of desirable expansion within areas having similar opportunities to make such adjustments. In all cases, the best interests of the farmer, consistent with the national situation, should be considered.

These crop estimates were predicated upon certain assumptions, first outlined in April 1941 and revised slightly in July 1941, which take into account the impact of the war upon the whole economy and the probable changes in the agricultural situation. It was necessary that the latter be interpreted in terms of price changes for commodities bought and sold in order to outline quantitatively the production responses which may be expected during the period 1943–45, and those which would be desirable over the long-term period.

The levels of industrial production, income payments, wholesale prices, and living costs for the United States outlined in table XI for the period 1943–45 are based upon these assumptions:

1. Continuation of the war program in the United States; or, when the war ends, active United States participation in world rehabilitation, with loans or gifts of industrial and agricultural goods to foreign countries sufficient to replace effects of the war.

2. Increase in capacity to produce steel and other essential materials sufficient to bring about full labor utilization.

3. Full utilization of available nonfarm labor, except 1 million for turn-over and 1½ million for military.

4. No increase in taxation sufficient to absorb all of the increase in national income payments to individuals.

5. Continuation of agricultural programs and loans at 85 percent of parity.

TABLE XI.—*Industrial production, income payments, wholesale prices, and living costs, United States, 1943–45*

Item	Unit	1939	1940	1941	1943–45
Industrial production	Index 1935–39=100	108	122	148	175
Income payments, total	Billion dollars	70.1	74.3	85.3	112.0
Nonagricultural	Billion dollars	63.7	67.6	77.8	101.5
Agricultural	Billion dollars	6.3	6.7	7.5	10.5
Farm cash income	Billion dollars	8.7	9.1	10.0	14.0
Wholesale prices	Index, 1926=100	77.1	78.6	84.0	95.0
All prices, exclusive of farm and food.	Index, 1926=100	81.3	83.0	88.4	100.0
Farm	Index, 1926=100	63.3	67.7	74.4	86.5
Food	Index, 1926=100	70.4	71.4	76.0	86.5
Prices paid by farmers	Index, 1910–14=100	121	122	128	141
Prices paid, interest and taxes	Index, 1910–14=100	127	127	132	144
Cost of living, urban	Index, 1940=100	99.3	100.0	102.9	115.0

The rate of increase in industrial production between 1939 and 1941 has been extremely rapid with the added stimulus of war activities. The estimated index of 148 for 1941 would mark a 40-point increase. If industrial production reaches 175 by 1944 it will mean an average increase of 7 points every 6 months until that time. This is a startling rate of increase when it is considered that we were reaching the limits of our current plant capacity in many lines of production near the end of 1941. Further expansion means more plant capacity, more labor shifts, and a more effective utilization of plants with small capacity.

It is estimated that by 1944 we will have not only become a "100 billion dollar country" but will have exceeded this by 12 billion dollars. The rate of increase in agricultural income almost keeps pace with the nonindustrial income. Cash farm income, it is estimated, would rise almost 50 percent.

Prices paid by farmers would increase an additional 13 points above the 1941 level on a 1910–14 base. Using 1940 as a base, it is estimated that urban living costs would increase about 15 percent.

Special attention must be called to the 1943–45 prices for cotton and wheat, which are approximately 15¼ cents and $1.30, respectively. Adjustments outlined on the assumed prices for these commodities would not be reasonable without rigid assumptions of national acreages. Total cotton acreage harvested, it is assumed, will not exceed 20 to 22 million acres and the total seedings of wheat will not be more than 55 million acres.

This study is based primarily upon the 1940 *Census* which shows a total of 22.8 million acres of cotton (harvested). Reductions, for the period 1943–45, range from 6 to 8 percent in areas in which there are a high proportion of small farms and few production alternatives. In areas in which there is a higher proportion of large farms and relatively greater opportunities to shift to other lines, acreage reductions are between 7 and 9 percent. Exceptions are made for areas in which cotton production has become very difficult, e. g., in the Black Belt of Alabama. Reductions in the "long-term desirable" in many sections are not as great as probably will be warranted eventually. However, greater success must be obtained from alternatives to cotton in many sections before it will be safe for producers to give up more of their cotton base.

Tobacco estimates were based upon the average in 1939, a year in which marketing quotas were not in effect; much of the recommended change from that base has already been made.

The wheat acreages were not limited to the usual Southeastern proportion of the assumed national production of 55,000,000 acres of wheat. An exception was made to provide for increases, mainly for home use, which can be expected with the revised AAA ruling for non-wheat-allotment farms.

It is assumed that the costs of farm building materials, for items other than those used in the home, and farm machinery would increase 22 and 30 points, respectively, compared to the 1940 level on the basis of a 1910–14 index. It is assumed that fertilizer prices would increase about 12 points from the 1940 level. This change in fertilizer prices is based on the further assumption that shipping facilities will be available to enable us to continue imports of nitrates from Chile to partially offset the demands of the war program for these materials.

Farm wages will develop a greater range of variation during the next 4 years. The attraction of off-farm employment is going to be received differently in many producing areas. Using a 1910–14 base, the index of farm wages in 1943–45 is estimated at 175 compared to 126 in 1940. It should be kept in mind that seasonal labor prices in some areas will go far above this level and in other areas not reach it.

Estimates headed "expected 1943–45" are approximations of the average production resulting from changes farmers will make if prices are increased to the levels anticipated. It is assumed that present agency programs will be continued about as they were functioning July 15, 1941. Any further changes in action programs, therefore, might result in further production changes not accounted for in these estimates.

Implicit throughout this statement is the assumption that changes necessary to meet the needs of the war program during the next 4 years will be such

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that the foundation for a more stable agriculture in the Southeast will have been laid.

The recommendations headed "long-term desirable" should be consistent with good management, resource conservation, and the development of a more stable agriculture. The long-term desirable estimates represent the best judgment as to the pattern of production that would be compatible with increased farm incomes and conservation of resources during, say, the next 15 to 20 years.

Table XII indicates (*a*) the production adjustments which may be expected by 1943–45, and (*b*) the desirable long-term goals or adjustments for the entire region. Both of these situations are expressed as a percentage change from the 1939 base. Further reference to table XII, which portrays the situation in the region as a whole, indicates that, in general, hay, small grains, and pasture acreages could be increased materially from a long-term viewpoint and to a much greater extent than will be accomplished by 1943–45. Livestock numbers of all classes, with the exception of work stock, should be increased materially to provide not only more cash income but also more food for home use. Part of the wheat and potato increases were made in the interest of food for home use, as was also the case with milk production.

TABLE XII.—*Summary of production estimates, Southeast region*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [5]	
			Expected 1943–45	Long-term desirable (tentative)
Number farms	Number	1,465	−4	−11
Total cropland	Acres	48,343	0	1
Plowable pasture	Acres	13,617	7	43
Woodland in farms	Acres	45,069	−1	−6
All land in farms	Acres	118,898	1	3
Corn (all purposes)	Acres	18,148	2	−11
Corn (grain)	Bushels	237,187	13	16
Cotton	Acres	8,859	−8	−9
Do	Bales	4,926	−7	4
Tobacco [4]	Acres	1,167	−33	−21
Do [4]	Pounds	933,357	−25	−10
Irish potatoes [4]	Acres	238	15	54
Do [4]	Bushels	22,287	17	67
Sweetpotatoes [4]	Acres	354	19	44
Do [4]	Bushels	28,819	32	64
Wheat	Acres	1,067	15	57
Do	Bushels	12,363	12	69
Oats for grain [2]	Acres	1,475	42	225
Do [2]	Bushels	32,191	52	266
Other small grains	Acres	179	4	182
Total hay	Acres	6,046	15	80
Do	Tons	5,534	17	108
Peanuts for nuts and oil	Acres	1,311	29	4
Do	Pounds	826,163	56	29
Peanuts hogged off [4]	Acres	936	13	56
Soybeans for beans	Acres	313	28	64
Do	Bushels	3,186	42	133
Tomatoes [4]	Acres	71	31	32
Do [4]	Bushels	7,067	17	22
Other commercial vegetables [4]	Acres	402	17	17
Total cattle	Number	5,611	13	53
Beef and veal production	Pounds	759,440	12	57
Cows milked	Number	2,249	11	64
Milk products	Gallons	689,573	13	80
Hogs and pigs	Number	5,781	12	31
Pork products	Pounds	1,360,467	15	39
Sheep and lambs	Number	553	15	45
Mutton and lamb products	Pounds	15,953	24	97
Wool products	Pounds	1,944	23	104
Horses, mules, and colts	Number	2,307	−2	−5
Chickens	Number	40,022	15	49
Egg products	Dozen	222,705	23	82

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from the files of the Agricultural Marketing Service. Beef, pork, and mutton production estimates are based upon the 1935 Regional Adjustment Study. All other items are from *Census of Agriculture*, 1940.

[2] Includes cut ripe and fed unthreshed.

[3] Bushels threshed and bushel equivalent for that cut ripe and fed unthreshed.

[4] Data for Mississippi not included.

[5] Assumes utilization of alternatives. No one change independent of others.

Needed Adjustments by Subregions

State experiment stations and the Bureau of Agricultural Economics have delineated the 7 Southeastern States into 41 type-of-farming areas. The agricultural production pattern, as it is reflected in the sources from which farm income is obtained, is relatively uniform within each area. These type-of-farming areas have been grouped into the 15 main physiographic subregions. Such a physical and economic grouping gives an excellent starting point for adjustment consideration in that it outlines the present pattern within subregions which have similar resources and about the same physical limitations to adjustment opportunities. (See Fig. 21.)

Subregion 1—Upper and Lower Coastal Plains

Expected changes in this subregion will go far in the direction of the desirable short-term adjustments if the assumed prices prevail. Pork production is expected to increase about 18 percent; beef, 12 percent; milk, 10 percent; and poultry, 17 percent. Feed for these increased livestock numbers will be obtained from increased acreages of peanuts, small grains, hay, and corn. Details of changes are shown in table XIII.

Peanuts for hogging-off will be expanded mainly in south Alabama and southern Georgia. The production of peanuts for oil and for food may greatly exceed the estimates presented in the table. Additional experimental evidence is needed before the long-time desirability of expanding dug peanuts can be determined.

Most of the commercial vegetable production is in the Gulf Coast area of Alabama (Baldwin and Mobile Counties), south-central Georgia, and the "Charleston area" in South Carolina. Wages will undoubtedly increase, but a fairly satisfactory supply of labor will probably continue to be available, except in areas close to centers of war activity. More family labor is used in the Georgia area than in the Florida and Virginia vegetable areas; hence the limitation from the labor supply will be somewhat less acute. Further increases in vegetable production would be desirable from a long-term standpoint.

At present, livestock production in this subregion is at a low level of efficiency. In the Georgia and Florida area cattle and hogs are both turned into open range for approximately 6 months with very little supplemental feed. In the Alabama areas a "new" stock law has been in force only since October 1940. This

provides a county option for cattle. Sows farrow the year round, and most of the pigs are "carried through" to peanuts each year. Regulated breeding, with a two-litter system, and an increase in summer feed crops for hogs would be definite improvements. Hog production fits into the cotton-tobacco-peanut system of farming more satisfactorily than cattle production, but much is lacking in present feeding practices on the average farm to obtain anything like the potential increases. Cross fences are needed on many farms to make it possible to utilize grazing crops more fully. Some farmers in the area are very careless about vaccinations. With $10.00 to $10.50 hogs, vaccination would pay large dividends.

Pasture improvement presents a particularly difficult problem in this subregion. The soils are predominantly sandy, and grasses which grow naturally are not very nutritious. Careful site selection is a necessity for successful pasture establishment. This particular obstacle will limit very large expansions of beef cattle and dairying in this section for some time to come.

The major portion of the long-term reduction in cotton acreage should be made in the lower Coastal Plains because of the low yields due to damage by boll weevil.

Over the long-time period, a general increase in livestock on farms is needed to provide more fully for

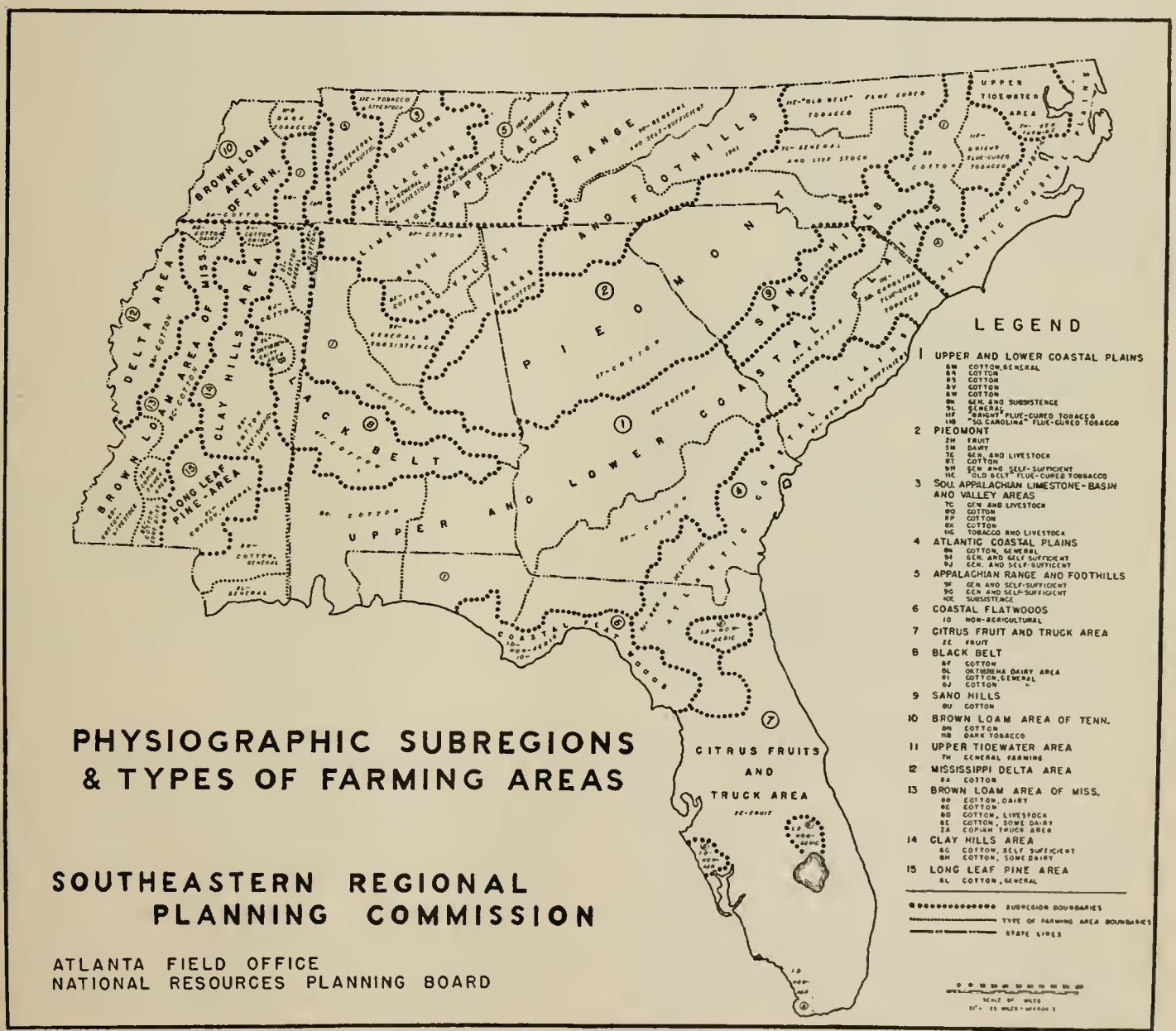

Figure 21

TABLE XIII.—*Summary of production estimates, subregion 1, Upper and Lower Coastal Plains*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long term desirable (tentative)
Number farms	Number	367	−4	−2
Total cropland	Acres	15,110	1	7
Plowable pasture	Acres	1,727	8	58
Woodland in farms	Acres	14,137	−4	−10
All land in farms	Acres	33,317	−1	3
Corn (all purposes)	Acres	6,500	3	−4
Corn (grain)	Bushels	67,849	16	26
Cotton	Acres	2,697	−7	−14
Do	Bales	1,233	−5	1
Tobacco [3]	Acres	620	−36	−23
Do [3]	Pounds	519,876	−32	−19
Irish potatoes [3]	Acres	56	12	84
Do [3]	Bushels	5,214	14	102
Sweetpotatoes [3]	Acres	160	18	43
Do [3]	Bushels	12,787	33	66
Wheat [3]	Acres	92	30	122
Do [3]	Bushels	1,296	15	103
Oats for grain [4]	Acres	578	22	166
Do [5]	Bushels	11,348	18	187
Other small grains [3]	Acres	12	17	175
Total hay	Acres	1,604	22	85
Do	Tons	1,010	21	108
Total	Number	1,160	13	55
Beef and veal production	Pounds	137,080	12	81
Cows and heifers milked	Number	432	13	72
Milk products	Gallons	152,573	10	93
Hogs and pigs	Number	2,018	12	50
Pork products	Pounds	498,975	18	65
Sheep and lambs	Number	101	−5	14
Mutton and lamb products	Pounds	1,936	5	83
Wool products	Pounds	297	−8	70
Horses, mules, and colts	Number	581	−4	−4
Chickens	Number	9,309	17	58
Egg products	Dozens	49,894	20	80

[1] Beef, pork, and mutton production estimates are based on the 1935 Regional Adjustment Study. All other items are from the *Census*.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Does not include amounts for Mississippi.
[4] Includes cut ripe and fed unthreshed.
[5] Bushel threshed and bushel equivalent for that cut ripe and fed unthreshed.

home needs. (See table XIV.) A corollary to this is that the livestock must be better fed. It would require 16 percent of the 1939 crop acreage to produce enough feed for the livestock needed to supply home needs for milk, pork, poultry, and eggs.

It can be argued that farmers in this subregion should immediately increase cows sufficiently to supply minimum adequate diet needs. But at present there are many obstacles which must be overcome before all families will effectively utilize milk. Cooling facilities are generally lacking.

In addition to crop and livestock production, consideration must be given in this area to the vast acreage of woodlands and the manner in which it may be made

TABLE XIV.—*Livestock numbers needed to provide minimum adequate diets for the farm population compared to amount available if adjustment objectives are reoched, subregion 1* [1]

Products	Produced in 1939	Needed	Expected 1943–45	Desirable long-term
Cows	319,500	630,000	360,000	566,000
Hogs	1,493,000	1,869,500	1,647,500	2,414,000
Chickens	6,583,900	8,485,600	7,704,000	10,555,000

[1] Table applies only to type-of-farming areas in subregion 1 in Alabama, Georgia, and South Carolina.

TABLE XV.—*Estimates of costs and returns on 260-acre forest farm, from development through maturity, Lower Coastal Plains, Ala.*

Period	Woodland income (net) [1]	Other farm income (net)	Total farm income (net)	Less annual payment on loan	Net annual return
1st decade	$240	$100	$340	$160	$180
2d decade	510	100	610	160	450
3d decade	625	100	725	160	565
4th decade	725	100	825	160	665

[1] $6 per 1,000 board-feet for sawlogs, $1 per unit of pulpwood, 8 cents per face for naval stores operations.

to contribute more effectively to farm incomes. Only half of the land in the Coastal Plains is in farms, and 40 percent of this is in woodland.

Many farms throughout the Coastal Plains could develop forest farming enterprises by following good forestry practices, such as maintaining proper conditions for tree growth through protection from fire, thinning dense stands, shipping conservatively, planting as necessary, and harvesting worked-out timber. Essentials for such operations are the following:

1. Two hundred to three hundred acres of land, including 20 acres of tillable land, 20 acres of pasture and other land, and 220 acres of turpentine-pine timberland. The timberland would have to be fairly well stocked, with sufficient trees to afford at least 3,000 workable faces at the start and 100 or more trees per acre, 2 to 8 inches, diameter at breast height, to come into production later. These trees would have to produce 5,000 workable faces at the end of 10 years.

2. Families willing and able to carry on gum farming as a way of life.

3. Sufficient credit, probably combined with some type of government subsidy to supplement the low income likely to be derived from forest farming during the developmental period of 10 to 15 years.

The cost of land, buildings, and equipment for such a farm would amount to approximately $3,700. The average annual net return would increase from $180 during the first 10-year period to $665 during the fourth 10-year period. (See table XV.)

Subregion 2—The Piedmont

The Piedmont plateau, with its wrinkled, rolling skyline, stretches through the Southeastern States from North Carolina to Alabama. Except for the "Old Tobacco Belt," which is located in the upper part of the Piedmont, the subregion is dominated by cotton production.

Present trends are toward increasing livestock numbers, greater production of food and feed for home and farm use, and more soil-conserving crops. Slow as these trends may be, they will be accentuated by a growing realization on the part of these farmers that

alternative enterprises must be found, partially to replace and partially to supplement cotton and tobacco. Reinforcing these trends are the action and extension programs directed toward making Piedmont farmers conservation conscious.

The stimulus of the assumed 1943–45 prices will undoubtedly result in shifts in the same direction, at an accelerated rate. Table XVI presents quantitative estimates of these adjustments. The most important changes expected by 1943–45 include increases of 20 percent in beef production, 12 percent in milk, 8 percent in pork, 12 percent in mutton, and 16 percent in poultry. Production shifts are also expected in the acreages of feed crops. These include increases of 38 percent in oats, 10 percent in hay, and 2 percent in corn.

These expected changes are very encouraging, but unless they are carried much further they will result in a minimum contribution toward meeting war needs and a lost opportunity to improve the economic situation both in the immediate and long-term future.

Recent studies made in Greene County, Ga., indicate that a small dairy enterprise provides a good opportunity for increasing farm incomes. Judging from this and other analyses it would seem desirable that milk cow numbers be increased 35 percent by 1943–45 instead of the expected 18 percent and that milk production be increased 30 percent. However, desirable increases from the farmer's standpoint may be higher in some cases than will be required to meet national production goals.

The contrast between the expected and the desirable increases is very striking. In every case the former is far less than the latter. Many factors contribute to these differences. Producing cotton or flue-cured tobacco is a highly specialized art in which farmers of the Piedmont excel, but many of them have never inoculated legume seed, weaned nine pigs if nine were farrowed, or bucket-fed a calf when butterfat prices were high. Most of them have the latent ability to do these things, but managerial assistance—perhaps from farm management consultants—will be necessary to provide this type of guidance.

Dairying will be retarded due to the lack of well-developed marketing systems and the difficulty of establishing needed pastures. At present, many of the farmers operating small dairy enterprises are scattered too widely to warrant the rapid development of milk or cream routes. The lack of good breeding stock is a limiting factor in developing beef enterprises. Cooperative action offers a way out of both of these difficulties in some communities.

The relatively high prices of cotton will cause many farmers to revert to the idea that "cotton is king" and thereby create a tendency to reverse the trend toward more diversified farming.

The lack of good pastures is an obstacle tending to limit the expansion of almost all livestock enterprises. This is due, in part, to the all too common conviction that making a pasture consists of fencing in a few acres of gullied and unproductive land that is unfit for the production of cotton, corn, or tobacco. The establishment of pastures on the uplands is difficult and costly. Bottomlands provide the best sites. Most bottomland areas that are now cleared are needed for feed crops, but there are thousands of acres of bottomlands covered with brush and undesirable hardwood species which could be cleared with a small input of cash and a large input of family labor, if available.

Present cash incomes on many of these Piedmont farms are too small to permit the operator to accumulate the capital reserves needed to make substantial adjustments in his farming system. Credit arrangements for such adjustments will have to be made with the full realization that the returns will not be large and that a long period of time will be required to repay the loan. This situation is especially acute in any attempt to increase the acreages of small grains and hays, for, at

TABLE XVI.—*Summary of production estimates, subregion 2, Piedmont*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, Numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long term desirable (tentative)
Number of farms	Number	251	−4	−10
Total cropland	Acres	8,672	2	6
Plowable pasture	do	1,794	9	41
Woodland in farms	do	8,695	−2	−11
All land in farms	do	21,140	0	0
Corn (all purposes)	do	2,811	2	−12
Corn (grain)	Bushels	33,398	17	5
Cotton	Acres	1,704	−6	2
Do	Bales	1,019	−18	−3
Tobacco	Acres	189	−34	−25
Do	Pounds	129,053	−21	−11
Irish potatoes	Acres	27	4	19
Do	Bushels	1,822	−5	10
Sweet potatoes	Acres	70	29	50
Do	Bushels	6,011	29	51
Wheat	Acres	540	8	39
Do	Bushels	6,072	3	31
Oats for grain [3]	Acres	543	38	189
Do [4]	Bushels	11,494	34	191
Other small grains	Acres	35	9	317
Total hay	do	762	10	190
Do	Tons	641	18	207
Total cattle	Number	650	23	83
Beef and veal production	Pounds	68,456	20	57
Cows and heifers milked	Number	369	18	99
Milk production	Gallons	169,987	12	96
Hogs and pigs	Number	475	5	17
Pork production	Pounds	140,466	8	21
Sheep and lambs	Number	12	8	0
Mutton and lamb production	Pounds	354	12	85
Wool production	do	43	2	−2
Horses, mules, and colts	Number	370	−2	−2
Chickens	do	7,000	16	80
Egg production	Dozens	40,202	17	83

[1] Beef, pork, and mutton production estimates are based on the 1935 Regional Adjustment Study. All other items are from the *Census*.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

present, the necessary harvesting machinery is simply not available. Finally, the usual renting arrangements are not conducive to the development of changes in systems of farming. Present agreements are based on cotton and tobacco systems and will have to be modified if stable tenure with "new" systems is developed.

This area is fortunate in that the long-term desirable adjustments are merely a continuation of those expected in 1943–45. (See table XVI.) Thus, the war period needs and opportunities, if used to full advantage, may hasten the final achievement of long-term goals.

Farm woodland must not be overlooked as an enterprise which will contribute materially to the development of a stable agriculture in the Piedmont. In the lower Piedmont sections woodlands were cut heavily to offset income losses resulting from the first inroads of the boll weevil. In spite of current woodland practices, natural reseeding has occurred and fairly rapid growth has been made. If present woodland practices are continued during the next 30 years on typical medium-sized cotton farms with 50 acres of woodland, the average cash return from stumpage sales would be about $40 per year. If fires were controlled and selective cutting practices adopted, the return during this period could be increased to $47 per year. With present practices continued, the stand at the end of the period will be badly depleted. With improved practices it would be developed to a point that a sustained yield amounting to an income of about $63 per year, assuming that stumpage would be sold, could be continued indefinitely. There is usually a large amount of free time for members of farm families on Piedmont farms from October through February. This 50 acres of woodland would provide about 10 days' work per year, with improved practices, paying about $2 per day, if the timber was sold as logs rather than on the stump.

Subregion 3—Southern Appalachian Limestone Basin and Valley Areas

This subregion is generally considered to be one of the most fertile and prosperous agricultural sections in the Southeast. The types of farming range from general farming in central Tennessee to cotton production in northern Alabama and northwest Georgia.

A number of farms in the subregion are now commercial producers of milk, beef, hogs, and poultry, all of which are needed in large quantities to feed the democracies. Milk production is expected to increase 14 percent by 1943–45 (see table XVII), with the greatest increase occurring in the Central Basin area of middle Tennessee where dairying is now of much importance, feed is plentiful, and an efficient marketing system is developed. A 26-percent increase in egg production

TABLE XVII.—*Summary of production estimates, subregion 3, Southern Appalachian Limestone Basin and Valley Areas*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	153	−7	−7
Total cropland	Acres	5,422	−1	−4
Plowable pasture	Acres	1,734	2	43
Woodland in farms	Acres	3,668	−2	−9
All land in farms	Acres	12 225	−1	−1
Corn (all purposes)	Acres	1,989	1	−16
Corn (grain)	Bushels	34,154	10	14
Cotton	Acres	840	−8	−4
Do	Bales	504	−11	21
Tobacco	Acres	62	−13	−19
Do	Pounds	56,119	−7	36
Irish potatoes	Acres	27	33	211
Do	Bushels	1,895	44	181
Sweet potatoes	Acres	24	25	96
Do	Bushels	2,206	26	101
Wheat	Acres	161	28	43
Do	Bushels	1,788	38	80
Oats for grain [3]	Acres	55	67	969
Do [4]	Bushels	1,004	85	1,536
Other small grains	Acres	53	13	191
Total hay	Acres	1,077	20	46
Do	Tons	1,111	23	102
Total cattle	Number	620	8	36
Beef and veal production	Pounds	62,222	13	71
Cows and heifers milked	Number	310	9	32
Milk production	Gallons	135,168	14	59
Hogs and pigs	Number	616	11	61
Pork production	Pounds	151,003	16	59
Sheep and lambs	Number	255	22	73
Mutton and lamb production	Pounds	6,382	32	185
Wool production	Pounds	954	21	157
Horses, mules, and colts	Number	298	−3	−5
Chickens	Number	5,382	16	49
Egg production	Dozen	31,354	26	130

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the *Census*.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

is expected with the greatest percentage increases to come from the present area of relatively large farm flocks in middle Tennessee and northern Alabama and Georgia. Pork is expected to increase 16 percent with quantity increases occurring in all areas, made possible by plentiful supplies of corn and ready markets. The largest increase in beef production (13 percent for the subregion as a whole) is expected to take place in the general livestock area of middle Tennessee, where beef cattle now are of importance and where this farm enterprise fits in well with other enterprises. Mutton and wool production are expected to increase 32 and 21 percent, respectively. An important increase of these products will take place in the Central Basin area of Tennessee, where farm flocks now provide a good source of cash income.

Peanuts are of little present importance, but they may be of future importance in the Tennessee Valley area of Alabama for hogging off. Limited increase in commercial vegetables can be expected throughout the subregion.

This subregion has large acreages of productive pastures, and soil and climatic conditions are favorable to the growth of winter legumes, hays, and other cover

crops. Erosion is not a serious problem in most areas in this subregion. In areas such as the Sand Mountain section of Alabama, current programs centered around terracing and winter cover crops should expand to check and prevent further soil losses.

Satisfaction with present and prospective large farm incomes over much of the subregion is a restraining factor in any attempt to get expected changes closer to those desirable. Expected changes are in the same direction as desirable and the differences between the two are not great. Cotton acreage will not be reduced as much as is desirable, owing to the profitableness of cotton resulting from high yields and the desire to retain high AAA payments and base acreages. Much of the reduction in cotton acreage should occur in the areas which have high feed yields and profitable alternative livestock enterprises to turn to, rather than on Sand Mountain and northwest Georgia where farms are small and cotton production efficient. The expected reduction in tobacco production, most of which is in two north-central Tennessee counties, will be practically the same as is desirable. This reduction will be in dark tobacco and not in burley, since the long-term outlook is more favorable for burley tobacco. Land and other resources taken out of dark tobacco will be used for expansion of feed-crop acreages, beef cattle, milk cows, and poultry. Proper fertilization of crops, with emphasis on use of manures and cover crops, will increase crop yields.

Some increase in credit may be needed to enable farmers to enlarge buildings and fencing and buy supplemental mineral and protein feeds. Farm labor shortages, due to relatively full employment of the present farm population and some labor loss to defense centers, will result in higher wages and increased costs, particularly in dairying and commercial vegetables.

Most of the areas in the subregion now produce large quantities of livestock and livestock products for sale to urban consumers. Livestock surpluses above home needs are lower in the Alabama and Georgia areas than in the Tennessee portions of the subregion. For this reason, the short- and long-term desirable numbers of hogs, poultry, and dairy cows increase in Alabama and Georgia. The present balance between livestock and cash crops can be improved to some extent throughout the subregion.

It is expected that the present number of farms will be reduced 7 percent through farm-to-city migration. No greater migration is desirable either for the short or long terms. If migration back to the farm becomes necessary after the war, this subregion could support an increased population with less shock to the agriculture than most other sections of the Southeast and would have a smaller relief load.

TABLE XVIII.—*Summary of production estimates, subregion 4, Atlantic Coastal Plains*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	66	−5	−3
Total cropland	Acres	1,997	1	7
Plowable pasture	Acres	282	10	69
Woodland in farms	Acres	3,419	−3	−9
All land in farms	Acres	6,098	−1	2
Corn (all purposes)	Acres	903	9	19
Corn (grain)	Bushels	13,370	11	25
Cotton	Acres	81	−9	−27
Do	Bales	37	−11	−27
Tobacco	Acres	161	−40	−28
Do	Pounds	115,031	−25	8
Irish potatoes	Acres	49	6	4
Do	Bushels	6,151	7	3
Sweet potatoes	Acres	29	17	24
Do	Bushels	2,607	13	22
Wheat	Acres	1	100	700
Do	Bushels	6	450	1,383
Oats for grain [3]	Acres	35	11	248
Do [4]	Bushels	712	8	241
Other small grains	Acres	1	0	0
Total hay	Acres	128	3	138
Do	Tons	109	−5	136
Total cattle	Number	262	23	55
Beef and veal production	Pounds	32,380	8	50
Cows and heifers milked	Number	60	12	53
Milk production	Gallons	21,061	7	53
Hogs and pigs	Number	412	21	51
Pork production	Pounds	112,381	21	43
Sheep and lambs	Number	11	18	−18
Mutton and lamb production	Pounds	385	15	−6
Wool production	Pounds	34	26	−3
Horses, mules, and colts	Number	81	0	−2
Chickens	Number	1,963	12	44
Egg production	Dozens	12,071	12	49

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the *Census*.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

Subregion 4—Atlantic Coastal Plains

The farmers in the Atlantic Coastal Plains are generally self-sufficing with crops usually consisting of corn and small acreages of cotton and tobacco. In certain localities, however, special systems of farming appear. Examples of these are the potato and truck areas of North Carolina and the fresh vegetable, poultry, and dairy areas around urban centers, such as Jacksonville, Fla., and Charleston, S. C. Forest products are a source of income in a good many sections; 55 percent of the farm-land area is in woods; only 33 percent of the total land area is now in farms; the remaining area consists mostly of woodland not in farms, or swamps and marsh.

Soybeans, peanuts for oil, pork, and eggs will all be increased markedly in response to prospective prices and national production goals. Much of the increased soybean acreage in North Carolina (see Appendix, table V) will be made in this subregion. It is assumed that cotton and tobacco base acreages will be further reduced. Undoubtedly farmers in this area will plant up to their bases, with higher prices for these two leading cash crops. Details as to changes in the subregion are outlined in table XVIII.

Small grains have not been of much importance in this section. Varieties which are more nearly adapted to soil conditions of the subregion and agency programs have contributed to an increase in recent years. This will be further encouraged with increases in the number of combines for harvesting small grain and legume seeds.

At the present time the efficiency of hog production in this area is extremely low. However, expansion of this enterprise will encounter fewer obstacles than any of the other classes of livestock. Hogs fit well with the types of feed produced and require less attention. Price increases should cause farmers to care for range hogs more carefully (some of the farming areas in Georgia and Florida have open range for hogs) and to vaccinate.

Most of the increase in other livestock production is expected to occur on the commercial farms localized around consuming centers. It is here that production is most responsive to price fluctuations. The assumed prices will not be high enough to bring in many "new" areas.

The direction of expected adjustment in this subregion is desirable, but the extent of the expansion of feed crops and livestock probably will not be carried far enough. Difficulties in curing hay; lack of previous experience in growing small grains, hays, and pastures; inadequate equipment for producing crops other than corn, cotton, tobacco, and peanuts which require the producer to own only inexpensive implements; and the lack of sufficient legumes in crop rotations will all retard feed crop increases.

In areas such as South Georgia it is a common practice to turn cattle and hogs into corn interplanted with peanuts and velvet beans. Since the stock are still in the fields at seeding time, it is impossible to follow corn with winter cover crops. Acreage of improved pastures and small grains, chiefly oats, should be increased well beyond expected production. Oats could be grazed during the winter and the grain fed to workstock and cattle. This increases the amount of corn available for hog feed. Furthermore, small grain is usually harvested early enough to permit hay to be grown on the land in the same year.

Cropper and tenant labor, small farms, low yields of feed crops, initial cost of adding livestock, the farmers' lack of interest in and of experience with livestock, and the high prices of cotton, tobacco, and peanuts are outstanding among the numerous factors that will retard livestock development.

If the distributing system were such that supplies of these products were channelled efficiently from the farms to the consumers, vegetable acreages in this subregion would probably expand. At present the products are not properly sorted, graded, and assembled for satisfactory marketing.

Tobacco acreage should increase over the 1943–45 period but remain below the abnormally large acreage of 1939, and the upward trend in feeds and livestock should be continued. Milk and egg production in these areas should be kept in line with local needs, if serious marketing problems are to be averted. Extremely low yields caused by boll weevil damage make cotton a relatively unprofitable crop in this subregion; therefore, it would be desirable to reduce cotton even further than in the 1943–45 period and in certain sections—South Georgia, for example—it would be desirable to stop growing cotton.

With an effective drainage development, additional land could be brought into production. This should be carefully considered as emphasis is turned toward an expanded public works program in the post-war period. Such a development would also necessitate a sound and effective land settlement policy by the Federal Government, which would prevent resettlement on unproductive areas that have been abandoned and direct new developments toward economical size and type farming systems.

The large woodland areas hold possible opportunities for supplementary farm income, if a suitable program can be initiated. A typical medium-sized general farm in Columbia County, Fla., has 160 acres, with about 100 acres of woodland. An annual net cash return of $175 could be obtained from 2,000 trees worked for naval stores, and $17 from sales of other forest products. In addition, about 125 fence posts, 25 cords of fuel wood, and 500 board feet of lumber are used on the farm. If damages from fire, overgrazing, insects, and disease are eliminated or considerably reduced, salable material from worked-out trees might easily amount to 8,000 board feet per acre within the next decade and gradually be increased as much as 20,000 board feet over a period of 15 to 20 years. By working the timber into logs, poles, piling, or pulpwood according to its merchantability and by the use of the family labor available at odd times, providing the farmer could work the timber himself for naval stores, income would be materially increased.

Subregion 5—Appalachian Range and Foothills

The range of variations between parts of this subregion is greater than in any of the others. But, all have these things in common: there is only limited opportunity for intensive crop production, except in the valleys; there is a high ratio of people to productive resources; and a high proportion of the farm families are dependent upon subsistence farming and part-time

TABLE XIX.—*Summary of production estimates, Subregion 5, Appalachian Range and Foothills*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number farms	Number	173	1	−6
Total cropland	Acres	3,728	−5	−8
Plowable pasture	Acres	2,225	5	24
Woodland in farms	Acres	4,752	−2	0
All land in farms	Acres	11,710	−1	3
Corn (all purposes)	Acres	1,359	−5	−14
Corn (grain)	Bushels	29,773	−8	0
Cotton	Acres	40	−8	−15
Do	Bales	25	−12	−4
Tobacco	Acres	62	−11	0
Do	Pounds	57,470	0	20
Irish potatoes	Acres	49	8	31
Do	Bushels	4,031	9	74
Sweet potatoes	Acres	17	18	71
Do	Bushels	1,499	28	84
Wheat	Acres	225	8	55
Do	Bushels	2,613	11	104
Oats for grain [3]	Acres	60	83	387
Do [4]	Bushels	1,106	100	662
Other small grains	Acres	64	−12	6
Total hay	Acres	909	8	30
Do	Tons	917	17	68
Total cattle	Number	647	7	33
Beef and veal production	Pounds	58,831	10	47
Cows and heifers milked	Number	296	11	41
Milk production	Gallons	119,456	16	67
Hogs and pigs	Number	448	−2	8
Pork production	Pounds	90,011	−1	17
Sheep and lambs	Number	115	18	36
Mutton and lamb production	Pounds	4,929	26	58
Wool production	Pounds	406	50	85
Horses, mules, and colts	Number	207	−7	−8
Chickens	Number	5,267	13	26
Egg production	Dozens	31,253	26	56

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the *Census*.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

work. On the small subsistence farms no appreciable adjustments are expected with the assumed 1943–45 prices. However, increased industrial activity and expansion of the armed forces will probably absorb some of the excess population. (See table XIX.) On the larger and more advantageously situated farms in the broader valleys of Tennessee, the assumed prices will probably cause production increases of 26 percent in mutton, 10 percent in beef, 16 percent in milk, and 13 percent in poultry. The production of mutton and beef will be largely for sale, and it is probable that higher prices will stimulate production in those sections where pastures are already fairly well established and on those farms whose physical and capital resources make this expansion possible. The increase in milk production will be stimulated by improved prices for dairy products and the availability of recently established condenseries in several parts of the subregion. The activities of these companies in bidding for a supply of milk and cream will provide a good outlet for those farmers to whom the plants are accessible. The 26-percent increase in the number of eggs will be fairly general over the entire area and most of the products from this enterprise will go into commercial channels. On the commercial farms it will be in the form of cash sales, but on the subsistence units, the increased eggs will be "traded in." In several parts of the subregion "cross-roads" stores, now being gradually replaced by the "rolling stores," are the only outlets. Further reductions of 8 percent in the cotton acreage are assumed. A 5-percent decrease is expected in corn. The availability of land left idle by these reductions, the need for more feed, and the trend toward conservation farming is expected to result in an increase of 83 percent in oats, 8 percent in wheat, and 8 percent in hay.

These expected changes are generally in line with those considered desirable for 1943–45. In livestock enterprises the greatest difference is with dairying. On the small farms in the mountain areas the expansion will be negligible because in many cases there is not enough land suitable for the production of feed crops or pasture, capital is lacking, and market outlets are poor. Obstacles to the desired increase on the better farms include a lack of capital and a lack of experience in dairying. These same factors tend to prevent the desired expansion of other enterprises on the small farms and tend to retard it on the larger ones.

The estimated long-term desirable production of all significant commodities, except hogs, would simply involve a continuation of the production trends expected for 1943–45. In general, they are in the direction of more livestock products for sale, more food and feed for home and farm use, a more soil-conserving system of farming, and a decided decrease in the number of farms.

The value of such adjustments is illustrated by the results from a recent study in Roane County, Tenn. The net cash income on a typical medium-sized farm would increase from $219 with 1935–39 prices to $265 with the assumed 1943–45 prices if the organization remains unchanged. By shifting production more in line with that indicated as desirable for this subregion, the net cash income on this farm will increase from $625 with 1935–39 prices to $820 with 1943–45 prices.

Families in the Appalachians provide this country with a reservoir of human resources. Past periods of frontier development and industrial expansion have been aided by a flow of people out of this section. There is evidence that this movement is well on its way again. As the Nation's production of war goods approaches full capacity, a large part of the labor in these areas will be employed in the mines and plants; but even when all of the present establishments are operated at full blast, there will still be a surplus of labor in the mountains. With the war effort demanding complete utilization of all resources and with the Appalachian Mountain regions providing in abundance two of the most important resources—labor and

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power—the obvious answer is to locate additional plants in the subregion.

The greatest increase in the economic welfare of the people in this section can come through such industrialization. If war plants of the proper type were located in this subregion, they could be later turned toward the production of peacetime goods. Eventually this would result in more income for many who are now barely subsisting, a reduction in the population pressure upon resources, the development of a skilled labor supply (which would migrate to sections where it is needed or would form an inducement for still more industries there), and an improved economic position for the remaining farms.

In order to take up the slack during the post-war period a system of rural roads would be of tremendous value in these areas. There are many farms that are relatively inaccessible at all times and completely so in winter.

Subregions 6 and 7—Coastal Flatwoods and Florida Citrus Fruit and Truck Subregions

Commercial vegetables, citrus fruits, and beef cattle are the important farm enterprises in these subregions. Dairying is important only for fluid-milk production for use in the larger cities in the area.

Citrus-fruit production, particularly that of oranges and grapefruit, is expected to reach such a high level that the marketing problem will become very serious, much more serious, in fact, than it has been in the recent past. This development is being brought about by two factors: (1) An increase in the average age of orchards and the consequent heavier yield, and (2) an improvement in methods of fertilization involving the supplying of the rare elements such as boron and manganese in the form of dolomitic limestone. This development has made possible consistently high yields rather than yields which vary widely from one year to the next. The increase in grapefruit production may possibly provide a greater problem than will oranges. Growers have found it increasingly difficult to move grapefruit during the last few seasons. Some growers have insisted that buyers purchasing oranges also purchase a minimum of grapefruit. If, however, a system of distribution is worked out which will enable the grower to receive the price assumed for 1943–45 and dispose of this total production at the same time, returns from citrus fruits will be much higher than in recent years.

Truck-crop production, in general, will undoubtedly be stimulated because of the anticipated high price level. Potato production is expected to increase 60 percent from the 1939 base with the potato-acreage increase amounting to 44 percent over the 1939 base.

TABLE XX.—*Summary of production estimates, subregions 6 and 7, coastal flatwoods and Florida citrus fruit and truck areas*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	33	−3	−3
Total cropland	Acres	878	0	0
Plowable pasture	Acres	409	28	71
Woodland in farms	Acres	1,479	14	14
All land in farms	Acres	5,357	8	10
Corn (all purposes)	Acres	116	9	38
Corn (grain)	Bushels	1,038	33	100
Cotton	Acres	1	0	0
Do	Bales	[3]	[4]	[4]
Tobacco	Acres	2	−50	−50
Do	Pounds	1,326	−37	−25
Irish potatoes	Acres	18	44	44
Do	Bushels	2,277	60	44
Sweetpotatoes	Acres	3	33	67
Do	Bushels	190	37	37
Total hay	Acres	12	33	233
Do	Tons	6	33	567
Tomatoes	Acres	40	12	12
Do	Bushels	4,848	−7	−7
Other commercial vegetables	Acres	110	24	24
Total cattle	Number	512	25	12
Beef and veal production	Pounds	156,612	18	28
Cows and heifers milked	Number	48	15	108
Milk production	Gallons	16,380	20	144
Hogs and pigs	Number	152	18	18
Pork production	Pounds	38,000	18	18
Sheep and lambs	Number	4	−25	−100
Mutton and lamb production	Pounds	126	−17	−100
Wool production	Pounds	10	−10	−100
Horses, mules, and colts	Number	19	5	5
Chickens	Number	989	11	57
Egg production	Dozen	7,726	14	71

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on 1935 Adjustment Study. All other items are from the *Census*.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Less than 500.
[4] No base for calculating percentage change.

Tomatoes for processing are unimportant in Florida, being at a great relative price disadvantage as compared to fresh tomatoes. An increase of about 5,000 acres in tomatoes for the fresh market is expected. The acreage of other commercial vegetables, of which snap beans are the most important, is expected to increase 26,000 acres or 24 percent over the 1939 base. Only 9½ percent of the total increase would be attributed to snap beans, while lettuce, with the introduction of an "adapted" iceberg type, may increase from about 1,000 acres in 1939 to 7,000 acres by 1943–45. Other vegetables are expected to increase about 15 percent over the 1939 base. (See table XX.)

Beef cattle numbers are expected to increase by about 110,000 head by 1943–45. This increase is relative, since there is little agreement by interested organizations concerning the number of beef cattle actually in the State. The total number of range cattle in the State at present, excluding milk cows, is estimated at 753,000 head. The practice of fencing in additional acres of pasture now considered as open range, a phase of the expanding beef cattle industry, is expected to increase total plowable pasture by about 28 percent by 1943–45.

A slight increase in corn and hay production is expected as a result of the present upward trend in acreages of those crops. Both corn and hay yields at present are very low. The expected increase in egg production, 14 percent, will for the most part be confined to commercial poultry farms. The 20-percent increase in milk production, likewise, will be confined largely to the commercial dairy herds near Miami, Orlando, and St. Petersburg. A large part of the 20-percent increase in milk will be required by Army troops and civilian aids who have come to that part of the State. Sheep numbers and mutton production will continue to decline, as the area is unsuited for sheep production.

With respect to the subregions as a whole, expected changes are desirable. Rather than increasing, beef cattle numbers should remain at their present level. The open range is probably saturated at present. Efforts to increase actual beef poundage could be utilized better through increasing weights per animal by improved breeding and pasture improvement.

Orange and grapefruit production probably should not be higher than their 1940 level. Since much of the citrus increase is from established orchards, it would appear that the problem could be more effectively approached by improving the distribution of citrus products. This may mean greatly expanded governmental purchasing of surplus citrus for distribution to low-income families. It is true that grapefruit-juice consumption has increased markedly during the last few years, but this will in no appreciable measure affect the expected production increases.

Long-term desirable increases over those expected include a 93-percent increase in milk-cow numbers to improve diets of farm people; an increase of 57 percent in egg production, likewise for improving the diets of farm people; an expanded acreage of plowable pasture; and a slight reduction in total acreage of commercial vegetables other than tomatoes. Corn should be increased 29 percent over the expected level to provide greater quantities of feed. Part of this increase should be for silage since dairy cattle now receive very little roughage along with the concentrates. Hay production should be increased many times over its present level, but expansion will be held up until a practical hay-drying process is developed. Some additional farm land will be brought into production over the long term, but it is extremely difficult to predict just how great the acreage will be. The acreage of land in farms has been increasing at a rapid rate, and may continue to do so for several years. Potentialities in the Everglades for truck-crop expansion, and possibly for sugarcane production, are inestimable on the basis of present information.

TABLE XXI.—*Summary of production estimates, subregion 8, Black Belt*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long term desirable (tentative)
Number of farms	Number	72	−8	−39
Total cropland	Acres	2,206	0	−14
Plowable pasture	Acres	1,453	4	39
Woodland in farms	Acres	1,204	2	−11
All land in farms	Acres	5,564	0	0
Corn (all purposes)	Acres	735	−1	−22
Corn (grain)	Bushels	5,120	55	48
Cotton	Acres	537	−11	−35
Do	Bales	141	15	29
Sweetpotatoes [3]	Acres	17	6	18
Do [3]	Bushels	738	95	117
Oats for grain [4]	Acres	22	136	932
Do [5]	Bushels	499	110	814
Other small grains	Acres	(6)	(7)	(7)
Total hay	Acres	281	21	69
Do	Tons	308	21	123
Total cattle	Number	480	5	31
Beef and veal products	Pounds	68,820	4	26
Cows and heifers milked	Number	177	7	62
Milk production	Gallons	52,228	19	128
Hogs and pigs	Number	232	5	−6
Pork production	Pounds	42,990	7	−7
Sheep and lambs	Number	11	45	191
Mutton and lamb production	Pounds	255	59	218
Wool production	Pounds	36	56	214
Horses, mules, and colts	Number	126	5	−12
Chickens	Number	1,471	6	18
Egg production	Dozen	6,070	37	84

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Does not include amount for Mississippi.
[4] Includes cut ripe and fed unthreshed.
[5] Bushels threshed and bushel equivalent for that cut ripe and fed unthreshed.
[6] Less than 500.
[7] No base for calculating percentage change.

Subregion 8—Black Belt

A transition from almost complete reliance upon cotton as a source of cash income to increased dependence upon livestock has been taking place in the Black Belt. The predominant Negro population, long familiar with the practices involved in cotton production, is facing acute adjustment problems with the introduction of more livestock farming. In the shift from cotton production, the trend has been to beef cattle. This change in the system of farming, requiring less farm labor, is creating a serious problem of population displacement. In 1935 there were some 5.7 acres of cropland per capita; this is much too small a land base to support the present number of people with an extensive type of agriculture.

A further 11-percent reduction in cotton from the 1939 base is expected by 1943–45. It would be desirable for this reduction to go even further. Most of this reduction should be made on the lime soils of the area, which are unsuited to cotton production. The reduction in cotton acreage is accompanied by an expected increase in cattle and feed crops. The trend toward beef cattle in this area has been slowed, with more emphasis now being placed on milk production. Small grain acreage is expected to be double the 1939 acreage and the hay acreage increased to 21 percent above

1939. Farmers are realizing more each year that small grains—particularly oats—furnish more feed per acre than corn in most parts of this subregion. Hay or pasture can be secured on the same land after the small grain is harvested. It is expected that these larger feed supplies will be used to a large extent to feed increased numbers of milk cows. Dairy cows and milk production will increase about 7 percent by 1943–45 as compared to increases in total cattle numbers of 5 percent and only slight increases in beef production. (See table XXI.)

Poultry numbers are expected to increase only 6 percent by 1943–45, but egg production is expected to increase almost two-fifths. Production per hen has been very low. The anticipated production in 1943–45 will still be low, about 50 eggs per hen. A considerable percentage increase is expected in Irish potatoes, tomatoes, and other commercial vegetables, although present acreages are small. Peanuts are not important in the area, and it is unlikely that they will be of importance in the future.

The AAA program is expected to cause the trend toward winter legumes and other close-growing crops to continue. A recently developed winter pea, which produces abundant quantities of seed, should enable farmers to expand winter-legume acreage.

The "expected" changes by 1943–45 are in general in the same direction as are "desirable" long-term changes. Cotton acreage will remain higher than desirable on the lime lands of the area owing to farmers' efforts to retain a fairly high adjustment and conservation payment and an easy entrance back into the enterprise. Many farmers will fail to make desirable changes partly because of inertia, contentment with the incomes resulting from higher price levels, and economic obstacles which stand in the way. Stringent sanitary regulations for whole milk production; a lack of credit facilities for small farmers to buy fencing, building material and breeding stock; and reluctance on the part of many to milk, will prevent milk production from being expanded to the desirable level. Poultry production will not increase as much as it should by 1943–45, owing to small corn supplies and the absence of an adequate marketing system for poultry products.

If the present general practice of breeding dairy cows to beef bulls were stopped and good quality dairy bulls used instead, the supply of dairy heifers could be greatly increased over the next few years. An AAA payment to cover part of the seed cost coupled with an educational program would probably increase small grain production considerably.

The production of pork and poultry products has been increased in the long-term desirable program to furnish home needs and a small surplus for sale.

TABLE XXII.—*Summary of production estimates, subregion 9, Sand Hills*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	25	−4	−8
Total cropland	Acres	982	0	−2
Plowable pasture	Acres	79	8	22
Woodland in farms	Acres	1,139	−3	36
All land in farms	Acres	2,311	−1	19
Corn (all purposes)	Acres	333	6	−3
Corn (grain)	Bushels	4,708	12	2
Cotton	Acres	213	−7	−7
Do	Bales	153	−25	−25
Tobacco	Acres	23	−35	−26
Do	Pounds	20,335	−37	−29
Irish potatoes	Acres	2	0	0
Do	Bushels	129	−1	9
Sweet potatoes	Acres	8	12	25
Do	Bushels	723	22	31
Wheat	Acres	39	8	26
Do	Bushels	428	−4	13
Oats for grain [3]	Acres	74	7	35
Do. [4]	Bushels	1,709	2	29
Other small grains	Acres	9	0	11
Total hay	Acres	101	6	53
Do	Tons	82	7	56
Total cattle	Number	43	5	19
Beef and veal production	Pounds	5,000	7	30
Cows and heifers milked	Number	25	8	28
Milk production	Gallons	11,724	8	30
Hogs and pigs	Number	76	8	11
Pork production	Pounds	28,176	9	12
Sheep and lambs	Number	1	100	100
Mutton and lamb production	Pounds	39	36	36
Wool production	Pounds	4	25	25
Horses, mules, and colts	Number	36	0	−3
Chickens	Number	630	10	31
Egg production	Dozen	3,302	16	38

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

Migration into areas affording better opportunities for nonfarm employment is expected to continue at a more rapid pace. Farm relief loads have been extremely heavy in the past and migration back into the area after the war may result in a repetition of experiences of the last two decades.

Subregion 9—The Sand Hills

The Sand Hills border the lower Piedmont in varying widths through the Carolinas. A tier of North and South Carolina counties is dominated by the low rolling hills and the relatively infertile coarse, sandy soils which are characteristic of the subregion. The porous nature of these soils, continuing to a surprising depth, makes it more difficult to build up and to conserve productivity than in the adjoining subregions.

The more productive sections of this subregion are rather thickly populated and farms are comparatively small. In other sections the land is submarginal for crop and livestock production under present conditions and there are few or no farms. Except for adjustments in cotton and tobacco acreage, which it is assumed will be brought about by general acreage reductions, only minor changes are expected. (See table XXII.)

Much of the reduction in tobacco acreage has been made already. The 1939 acreage, which is used as a base, was abnormally high since there was no effective acreage and marketing control that year. The expected acreage is practically the same as that reported in 1940. Land formerly in cotton and tobacco may be left idle, as higher prices for those commodities may reduce the incentive to increase production of other crops. Rising prices with increases in local demand, especially around the Army camps and other consuming centers, are expected to stimulate small increases in production of commercial vegetables and dairy products. Activities around defense centers may continue to furnish employment, thereby increasing incomes of many farm families from off-farm employment.

Because of the infertile soils it would be desirable for the decrease in number of farms to go slightly beyond the expected 3 percent reduction. There should be a further increase than expected in acreages of sweet potatoes, hay, oats, numbers of cows milked, hogs and chickens, with a large proportion of the increase in livestock on small farms for home use. Commercial milk production should be increased principally on the present commercial dairy farms rather than on farms that are not now producing milk for sale. Such increases would minimize the impacts of post-war adjustments since many of the additional farms that might be "brought in" now probably would be unprofitable with a return to normal prices.

An analysis of a family-size farm in the Sand Hills indicates the type of adjustments for such farms to meet defense needs and increase farm income. Twenty-eight of the 63.5 acres are cropland. At the present the cash income is chiefly from sales of tobacco, cotton, pork, and a few eggs.

Suggested adjustments would include a reduction in acreages of cotton, tobacco, and corn, and an increase in oats and truck crops. Oats and the early truck crops would be followed by soybeans or cowpeas for hay. These changes plus four acres of improved pasture developed on any low ground available on the farm should provide sufficient feed to enable the operator to add one milk cow, two pigs, and 25 hens to the present number of livestock and to feed the hogs to heavier weights. A winter legume would be turned under each year before corn. The present organization with normal prices returns a net cash income of $566. By reorganization, and with the assumed war period prices, the cash income could be raised to approximately $809.

Lack of capital, of proper rotation and treatment of the relatively infertile soils, and of interest in and ability to manage livestock will make it difficult for production to rise as far as desirable. Agriculture Department action agency contacts, especially those involving current farm plans, are relatively few in the Sand Hills. (See table IX.) Only 9 percent of the farmers in this subregion are included as compared to 22 and 27 percent in the Black Belt of Alabama and the Piedmont subregions, respectively.

In the long run it would be desirable for the tobacco acreages in the Sand Hills to exceed the acreage outlined for 1943–45. Some of the Sand Hill soils will produce good quality tobacco if properly fertilized, while other opportunities are very limited. The number of cows milked on the larger dairy farms should be reduced with a decrease in local demand as the result of cessation of defense activities. By plowing under legumes to increase yields, and increasing the oat acreage followed by summer hay, the quantities of feed could be increased, but not enough for much of an expansion in commercial livestock production.

There appear to be opportunities for small increases in the production of fresh vegetables, especially the early spring crops in this subregion. Another opportunity lies in possibilities for farm forestry development. To accomplish this, large areas of land not now in farms would be added to the present small units, which would necessitate special long-term finance and tax modification if an operator is to buy and develop a successful "forest farm" on this land.

Subregion 10—Brown Loam Area of Tennessee

This subregion is generally considered to have unusual potentialities for increased livestock production. The livestock industry is already well established in parts of the subregion, but has developed slowly because of the presence of the one-crop-cotton economy and the accompanying sharecropper system of farming. The predominance of cotton is indicated by the fact that around three-fourths of all the farms are classed as cotton farms.

Both of the generalized type-of-farming areas in the subregion contain several rather distinct subsections. The cotton type-of-farming area contains four main subdivisions: (1) a cotton-commercial truck farming subarea near Humboldt, Tennessee; (2) a cotton-livestock subarea centering in Obion county; (3) the cotton and cash grain subarea located entirely within the Mississippi River bottoms; and (4) the upland part of the area where cotton predominates entirely, including all or parts of Crockett, Lauderdale, Dyer, Haywood, Tipton, Shelby, and Fayette Counties.

The dark-tobacco, livestock type-of-farming area consists of Henry and Weakly Counties.

Within the general cotton type-of-farming area (which embraces the four subareas) livestock numbers should increase as cotton acreage decreases. This

TABLE XXIII.—*Summary of production estimates, subregion 10, Brown Loam area of Tennessee*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number farms	Number	57	−5	−9
Total cropland	Acres	2,003	−2	−14
Plowable pasture	Acres	621	7	21
Woodland in farms	Acres	719	−3	5
All land in farms	Acres	3,762	−1	−1
Corn (all purposes)	Acres	607	−1	−15
Corn (grain)	Bushels	10,801	13	32
Cotton	Acres	483	−5	−5
Do	Bales	331	−2	12
Tobacco	Acres	6	0	−17
Do	Pounds	4,722	−6	10
Irish potatoes	Acres	6	0	83
Do	Bushels	343	31	248
Sweetpotatoes	Acres	18	11	28
Do	Bushels	1,531	47	95
Wheat	Acres	10	20	120
Do	Bushels	112	42	262
Oats for grain [3]	Acres	4	250	1,250
Do [4]	Bushels	85	267	1,888
Other small grains	Acres	2	100	700
Total hay	Acres	362	6	20
Do	Tons	423	3	25
Total cattle	Number	221	10	38
Beef and veal production	Pounds	17,884	9	56
Cows and heifers milked	Number	95	6	18
Milk production	Gallons	38,736	8	85
Hogs and pigs	Number	239	−1	15
Pork production	Pounds	47,462	11	14
Sheep and lambs	Number	23	23	22
Mutton and lamb production	Pounds	1,139	19	23
Wool production	Pounds	104	15	22
Horses, mules and colts	Number	117	−5	−7
Chickens	Number	1,223	52	54
Egg production	Dozen	6,560	66	102

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut and fed unthreshed.

development should be encouraged as much as possible. Satisfactory yields of hay and other feed crops can be obtained. In addition, and possibly most important, good pastures can be made at reasonable cost. Owing to specialization in the area in the past and the aversion of its farmers to milking cows, beef cattle will probably increase at a more rapid rate than will dairy cattle. If dairying were undertaken seriously and existing potentialities fully developed, the probablities are that the area could become one of the most important dairy centers in the South. Adequate markets for dairy products are available at the present time.

Considering the subregion as a whole, expected trends are in the desired direction. Cattle are expected to increase about 10 percent. Mutton and eggs are expected to increase 19 and 66 percent respectively. Most of the increase in milk will come from the part of the subregion where dairying is already well established. The price increase will have a very rapid effect in that area. In the past, poultry numbers have fluctuated very widely in response to price changes. Sheep are relatively unimportant in most of the area, but are also expected to increase (23 percent) in numbers. Oat production (from a very small base) is expected to increase 250 percent by 1943–45, due almost entirely to the recently introduced improved variety of winter hardy oats. Barley production, by virtue of its increasing recognition as a competitor to corn for economical feed, will increase about an additional 60 percent from a small base. Wheat is expected to increase 20 percent in view of the revised "non-wheat-allotment-farm" regulation of the AAA. Increased small grain and permanent hay acreages are needed from a conservation standpoint, particularly in the hill cotton section in Tennessee, where erosion has taken a heavy toll.

Milk production change is perhaps the most important as far as desirable long-term changes are concerned. A total increase of 85 percent over 1939 is suggested as the long-term goal. Part of this goal would come from increasing the number of cows and part from increased production per cow. Accompanying this increase, pasture should be increased approximately 21 percent over the 1939 base, with most of the increase coming from cropland now classed as idle and a small part of it from woodland. Small grain and hay acreages should show additional increase over the short-term expected. Beef and veal production increases would come primarily from the increase in dairy cow numbers. Primarily through increased production per hen, resulting from heavier feeding, but with some further increase in numbers, egg production should be increased about 102 percent in the long term over the 1939 base.

A sizable proportion of "expected" and "desirable" production increases should be used to improve the diet of the farm people, since deficiencies here are much greater, relatively speaking, than in some other nearby subregions.

Existing credit facilities should be arranged to provide terms lenient enough to allow small farm operators to obtain capital necessary to expand milk and egg production. Capital will be needed by these farmers for pasture establishment, fencing, additional livestock, and haying equipment. Considering the potentialities and existing market facilities, such loans should be a good risk and would constitute a permanent contribution to the area. This area promises much in the way of gain if well developed programs, designed to increase the production of "defense" commodities, are attempted.

Subregion 11—Upper Tidewater

The higher prices and the assumed reduction in cotton and tobacco acreages will stimulate relatively rapid adjustments in the Upper Tidewater because of the numerous alternative cash enterprises. Most important among the changes will be a 38 percent increase in numbers of hogs and pigs, 20 percent in chickens, 40 percent in acreage of sweet potatoes and a decrease of 7 percent in cotton acreage. (See table XXIV and Appendix,

TABLE XXIV.—*Summary of production estimates, subregion 11, Upper Tidewater*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	18	0	−6
Total cropland	Acres	620	2	5
Plowable pasture	Acres	35	20	43
Woodland in farms	Acres	744	−1	−1
All land in farms	Acres	1,455	0	2
Corn (all purposes)	Acres	211	5	0
Corn (grain)	Bushels	4,188	3	−2
Cotton	Acres	71	−7	−11
Do	Bales	25	40	20
Tobacco	Acres	41	−34	−24
Do	Pounds	29,419	−20	−10
Irish potatoes	Acres	4	0	0
Do	Bushels	374	−7	−7
Sweet potatoes	Acres	5	40	40
Do	Bushels	530	43	43
Wheat	Acres	1	100	1,900
Do	Bushels	10	150	2,360
Oats for grain [3]	Acres	5	0	400
Do.[4]	Bushels	86	20	500
Other small grains	Acres	1	0	0
Total hay	Acres	158	8	58
Do	Tons	110	13	65
Total cattle	Number	21	19	90
Beef and veal production	Pounds	1,375	24	357
Cows and heifers milked	Number	10	10	100
Milk products	Gallons	3,776	−1	80
Hogs and pigs	Number	93	38	62
Pork products	Pounds	35,479	39	63
Sheep and lambs	Number	3	33	0
Mutton and lamb products	Pounds	110	13	13
Wool products	Pounds	9	33	44
Horses, mules, and colts	Number	36	0	−3
Chickens	Number	490	20	78
Egg products	Dozens	2,385	20	77

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut and fed unthreshed.

table V.) A large portion of the increases of soybeans and peanuts for oil in North Carolina, will be made in this subregion.

Further increases in production of feed for farm use, milk largely for home use, pork, eggs, and soybeans for sale would be desirable. The desired numbers of hogs and pigs is about the same as 1934 actual numbers. The lack of interest in dairy cows by the farmers is the principal factor restraining increases in numbers of milk cows, except on the present dairy farms. Recent downward trends in hog and poultry production will retard increases in these two classes of livestock. The present marketing system for soybeans and peanuts for oil should be investigated thoroughly, and if adjustments are needed these should be made immediately in order to handle the increased production efficiently. Present practices in feeding, breeding, and care of hogs result in low rates of gain and high mortality rates caused largely by poor quality breeding stock, improper feed, and cholera. Adequate veterinary service at a reasonable rate and intensive field work to instruct farmers in swine production are needed badly.

Because of probable future demand and price conditions, a further reduction in cotton would be desirable,

TABLE XXV.—*Summary of production estimates, subregion 12 Delta Area of Mississippi*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [4]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	71	−3	3
Total cropland	Acres	2,044	3	8
Plowable pasture	Acres	302	13	21
Woodland in farms	Acres	548	22	20
All land in farms	Acres	2,992	7	10
Corn (all purposes)	Acres	586	0	−37
Corn (grain)	Bushels	11,110	0	−17
Cotton	Acres	931	−10	18
Do	Bales	841	0	18
Soybeans for beans	Acres	44	127	398
Do	Bushels	484	210	805
Wheat	Acres	1	0	0
Do	Bushels	39	0	0
Oats for grain [2]	Acres	87	166	153
Do.[3]	Bushels	3,767	207	250
Other small grain	Acres	2	0	0
Total hay	Acres	245	−2	−10
Do	Tons	362	0	22
Total cattle	Number	99	14	126
Beef and veal production	Pounds	11,006	14	106
Cows and heifers milked	Number	48	2	67
Milk production	Gallons	17,748	−2	65
Hogs and pigs	Number	314	20	25
Pork production	Pounds	44,630	20	25
Sheep and lambs	Number	4	25	25
Mutton and lamb production	Pounds	71	24	24
Wool production	Pounds	11	27	27
Horses, mules, and colts	Number	100	−9	−9
Chickens	Number	1,539	5	42
Egg production	Dozens	6,287	10	50

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census, except soybeans.
[2] Includes cut ripe and fed unthreshed.
[3] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.
[4] Assumes utilization of alternatives. No one change independent of others.

since boll weevils frequently cause extremely low yields. Tobacco allotments should be raised above the 1943–45 level, but kept under the 1939 acreage. Decreased demand will make desirable a sizable reduction from the 1943–45 production of peanuts and soybeans for oil, and the numbers of hogs and pigs kept for sale. Beef cattle should continue to increase but the large proportion of small farms is a barrier that restrains rapid and widespread increases in this class of livestock. Where it is practical to develop a sequence of grazing crops to supplement pastures without taking out a large amount of cropland, the larger farms will probably find it profitable to develop beef-cattle enterprises to utilize available roughage. For example, in a typical situation, with approximately 80 acres of land and 40 acres in crops, 10 acres of open pasture could be developed, 5 beef cattle added, and hog numbers increased by one-half. With the resulting reorganization, the present normal income would be raised about $200. Approximately $300 capital would be required for the reorganization. Because these adjustments would not greatly reduce the intensity of farming, the need for population adjustment to the land would be affected very little.

Subregion 12—Delta Area of Mississippi

Prior to the AAA program, the Delta was a highly specialized cotton-producing area, and cotton provided

well over 90 percent of the income. Specialization was so great that about two-thirds of the cropland was used for cotton, and a large part of the feed for mules and home-use livestock was purchased. At present, just under one-half of the crop acreage is used for cotton, whereas corn, oats, or soybeans are becoming important cash crops on most plantations. In addition, the pasture acreage has been expanded to take care of additional cattle. (See table XXV.)

The agriculture of the area is characterized by large plantation units, well-equipped with farm machinery but still dependent largely upon resident cropper and wage families to supply the large amount of hand labor required for cotton. There is a noticeable trend toward mechanization and cash grains, and in some areas there has been a corresponding shift from croppers to wage hands.

This region is still one of the most intensive cotton-producing regions in the world, and its great comparative advantage in cotton production is attributable largely to high yields, long staple cotton, and its adaptability to the use of mechanized equipment, which results in a relatively low cost per bale. In 1939 the average census cotton yield in this region was about 400 pounds, as compared to 182 pounds for the hill areas of Mississippi and Arkansas, and about 250 pounds for the Cotton Belt.

The Delta is not very well equipped for livestock production, in spite of the relatively high productivity of the soil for pasture and feed crops. Owing to the lack of fences, trained labor, and other facilities for livestock, the excellent equipment and soils for cash crops, and the relatively high returns from cash crops, it seems probable that the well-drained productive Delta soils will be used largely for cash crops. Furthermore, most plantation operators have a decided preference for the cash-crop system. However, since there is a large amount of swamp land and waste land that is suitable only for grazing, and since beef prices are relatively favorable, a considerable increase in beef cattle numbers is expected.

Several significant changes in crop acreages are expected by 1943–45. Under the assumptions outlined above, cotton acreage will be cut about 10 percent. With a smaller cotton acreage, more favorable prices for grain and vegetable oils and a scarcity of farm labor, Delta planters are expected to increase oats for grain by 166 percent and soybeans for seed and oil by about 127 percent. This additional acreage consists in large part of the diverted cotton acreage. Most of the "new ground" will be put in corn and cotton. On loam soils, soybeans for grain can be grown after oats in some years. If this practice is carried out extensively, the soybean acreage may be somewhat larger than indicated.

TABLE XXVI.—*Summary of production estimates, subregion 13, Brown Loam area, Mississippi*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943-45	Long-term desirable (tentative)
Number of farms	Number	75	−5	−40
Total cropland	Acres	1,941	−5	−11
Plowable pasture	Acres	1,498	5	37
Woodland in farms	Acres	1,672	−1	−19
All land in farms	Acres	5,403	0	0
Corn (all purposes)	Acres	793	2	−2
Corn (grain)	Bushels	9,564	−4	10
Cotton	Acres	575	−10	−37
Do	Bales	318	−10	−32
Soybeans for beans	Acres	9	33	100
Do	Bushels	54	78	233
Peanuts	Acres	6	100	267
Do	Pounds	2,602	177	492
Oats for grain [3]	Acres	8	50	462
Do [4]	Bushels	264	50	462
Total hay	Acres	158	13	128
Do	Tons	188	16	187
Total cattle	Number	440	8	64
Beef and veal production	Pounds	74,387	8	64
Cows and heifers milked	Number	164	3	37
Milk production	Gallons	40,618	20	94
Hogs and pigs	Number	354	15	−24
Pork production	Pounds	40,945	15	−24
Sheep and lambs	Number	10	0	60
Lamb and mutton production	Pounds	176	0	60
Wool production	Pounds	27	0	63
Horses, mules, and colts	Number	139	6	−7
Chickens	Number	1,845	5	10
Egg production	Dozen	8,495	25	100

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census, except soybeans and peanuts.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed

Livestock numbers and production in the Delta are expected to increase considerably, but not nearly as much as seems desirable. Most of the Delta livestock other than workstock are used to provide products for home use, with the exception of the beef-cattle enterprise, and this is an important enterprise only on plantations having a considerable acreage of waste land suitable only for grazing.

It is estimated that beef production will increase 14 percent and eggs 10 percent by 1945. In contrast it would seem desirable for Delta planters, their croppers, and laborers to increase beef production 106 percent, pork 25 percent, milk 65 percent, chickens 42 percent, and eggs 50 percent. The major part of the additional pork, milk, poultry, and eggs should be consumed on the farm. (See table XXV.)

Most of the estimated changes in crop acreages are in the same direction, but less than the long-time desirable adjustments. However, one of the major exceptions is the corn acreage. A considerable part of the present corn acreage should be diverted to oats, soybeans, hay, and pasture. In the long run, the cotton acreage should be increased 18 percent, oats 153 percent, and soybeans for beans 398 percent. On the other hand all idle land should be put into crops or pasture and corn acreage should be reduced about 37 percent.

TABLE XXVII.—*Summary of production estimates, subregion 14, Clay Hills, Mississippi*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number of farms	Number	69	−3	−31
Total cropland	Acres	1,842	0	4
Plowable pasture	Acres	1,035	4	47
Woodland in farms	Acres	1,881	4	6
All land in farms	Acres	5,204	1	10
Corn (all purposes)	Acres	714	0	−20
Corn (grain)	Bushels	6,653	61	72
Cotton	Acres	443	−10	−14
Do	Bales	170	−18	24
Soybeans for beans	Acres	8	0	0
Do	Bushels	48	67	67
Peanuts	Acres	11	27	100
Do	Pounds	5,185	62	239
Oats for grain [3]	Acres	2	100	900
Do [4]	Bushels	61	100	1,048
Other small grains	Acres			
Total hay	Acres	193	11	147
Do	Tons	204	13	192
Total cattle	Number	297	5	125
Beef and veal production	Pounds	44,593	5	125
Cows and heifers milked	Number	155	5	100
Milk production	Gallons	45,550	20	120
Hogs and pigs	Number	217	15	−12
Pork production	Pounds	72,485	15	−12
Sheep and lambs	Number	1	0	−200
Mutton and lamb production	Pounds	18	0	200
Wool production	Pounds	3	0	167
Horses, mules, and colts	Number	136	10	5
Chickens	Number	1,891	10	25
Egg production	Dozen	10,445	25	75

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census, except soybeans and peanuts.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

TABLE XXVIII.—*Summary of production estimates, subregion 15 Long Leaf Pine area, Mississippi*

Item	Unit 1,000	Actual, 1939 [1]	Estimated acreages, numbers, or production, expressed as a percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)
Number farms	Number	34	0	0
Total cropland	Acres	901	2	−4
Plowable pasture	Acres	438	13	78
Woodland in farms	Acres	922	8	−4
All land in farms	Acres	2,359	2	−4
Corn (all purposes)	Acres	463	10	−44
Corn (grain)	Bushels	5,460	31	−5
Cotton	Acres	242	−10	−29
Do	Bales	129	−16	19
Soybeans	Acres	3	0	0
Do	Bushels	14	114	114
Peanuts	Acres	5	60	220
Do	Pounds	2,303	108	456
Oats for grain [3]	Acres	2	50	100
Do [4]	Bushels	55	67	155
Total hay	Acres	67	28	221
Do	Tons	63	41	292
Total cattle	Number	158	7	73
Beef and veal production	Hundredweight.	20,795	6	74
Cows and heifers milked	Number	63	8	36
Milk production	Gallons	16,050	32	89
Hogs and pigs	Number	137	10	−5
Pork production	Hundredweight.	17,501	10	−5
Sheep and lambs	Number	2	0	0
Lamb and mutton production	Hundredweight.	35	0	0
Wool production	Pounds	5	0	0
Horses, mules, and colts	Number	60	0	−7
Chickens	Number	1,022	20	20
Egg production	Dozen	5,751	27	94

[1] Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census, except soybeans and peanuts.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut and fed unthreshed.

Subregion 13—Brown Loam Area of Mississippi

The Brown Loam area of Mississippi, like that of Tennessee is generally considered to have important undeveloped potentialities for livestock expansion. On the present basis of farming, and as indicated by table XXVI, the number of farms is much too great for the total land resources. A reduction of 40 percent in the number of farms now in the area would be desirable from the long-term viewpoint.

The important adjustments needed in the long term include decreasing cropland by 11 percent, decreasing woodland 19 percent, and increasing pasture by 37 percent. To accompany the increase in pasture acreages, an increase in oat and hay acreage is suggested.

The number of dairy cows and beef cattle should be expanded to consume the increased amount of forage and hay available in the long term while hog numbers should be decreased by 24 percent.

Subregion 14—Clay Hills Area of Mississippi

This area lies mostly within the northeast quarter of the State. As indicated by the name, the topography is somewhat broken, becoming extremely hilly in many sections. Because of its sandy nature and steep slopes, the soil is very susceptible to both gully and sheet erosion.

The present farming is based primarily on cotton and subsistence. Farms are very small; the 69,000 farms in the area average only 24 acres of cropland. On the average, 14 acres are used to produce food and feed for home use, leaving only 10 acres for cash crops of which are usually devoted to cotton.

Due to small acreages per farm and a subsistence type of farming, little can be done toward cash-crop expansion in this area. Further, the increasing of yields as a means of increasing total production does not offer much possibility for the 1943–45 period. Because of the existing internal farm organization, small farm size, and price relationships and customs, no major change in crop acreages or in the cropping system is feasible in the period 1943–45.

This area is deficient in pork and beef production. Most of the beef is produced as a by-product of the dairy enterprise. Low feed-crop yields (corn yields vary from 6 to 8 bushels per acre) and poor pastures are not conducive to economical livestock production, although it is estimated that pork production (mostly

for home use) can be increased 15 percent during the 1943–45 period. Through better care of laying flocks and a slight increase in the number of hens, egg production could be increased 25 percent. About 5 percent of the farmers in the area engage in milk production on a commercial basis. These farmers could feasibly improve production as much as 20 percent through the period 1943–45. (See table XXVII.)

From the long-term standpoint, it is estimated that the number of farms should be reduced almost one-third, or 31 percent. This reduction would permit a larger average acreage for those farms that remain, which in turn should result in a higher level of living for those farm operators left. Also, as a percentage change from 1939, corn acreage should be decreased 20 percent while oats should be increased about nine times in the long-time period. Even though corn acreages decrease, corn production should be much greater because of an improved average yield. The number of cows milked should increase 100 percent, beef production should increase 125 percent, and egg production should increase 75 percent. Sheep and hog numbers could logically decrease to make room for the indicated expansion of beef, dairy cows and poultry.

Subregion 15—Long Leaf Pine Area of Mississippi

Soils in the Long Leaf Pine Area of Mississippi have been eroded and leached to such an extent that very difficult soil-management problems must be solved before many adjustments are feasible. Profitable use of much of the cropland has only been possible because of heavy applications of mixed fertilizer and nitrogen. More pasture, cover crops, and hay land are essential for future conservation and rehabilitation of the soil resources.

Beef cattle and dairy cattle are enterprises which apparently are best adapted to economical use of roughage feeds which would be produced in increased amounts if the changes as outlined in table XXVIII are carried out.

For the most part, small operations handled with under-utilized family labor predominate in the area. Dairying, a more intensive enterprise, will provide a greater return per acre than beef cattle. The more desirable shifts would be to add more beef animals on the larger units and milk cows on the small.

The most important and immediate bottleneck affecting milk and beef production in this subarea is the lack of facilities for curing and storing roughages. Only a small percentage of the farmers are feeding enough roughage to their cattle, and the majority feed less than one-fourth the recommended quantities. At the same time, at least one-half of the feeding value of roughages produced is lost because of poor management in cutting and curing, or because the crop remains unharvested. Credit, in small amounts, is needed for seed, mowing machines, and hay storage in most of the hill counties. Even these small amounts will represent a heavy responsibility for the small farmers.

The addition of dairying and livestock production to the farm pattern need not completely displace cotton or grain for home use. Profitable farming, with improved levels of living, will be more nearly realized as the production of food for home use and roughage and pasture is added on land not needed for cotton.

The long-time desirable adjustments call for substantial changes. The present number of farms may be considered satisfactory from the long-term point of view. Adoption of improved cropping and livestock practices will offer opportunities for increased volume and, with proper management, increased incomes.

Problems and Solutions in Agricultural Adjustments

It is uniquely significant that the farm production goals for the Southeast stemming from the war program are in the same direction as the goals essential for the long-range rehabilitation of the region's agriculture; to the extent that the region approximates the 1943–45 goals it will have advanced itself toward the diversified agriculture so sorely needed. The war period and post-war adjustment provide a more powerful market stimulus for the products of that type of agriculture than the region has previously experienced; absence of Federal subsidies, while extensive, could never be sizable enough to stimulate the amount of diversification latent in the war production program.

It becomes critically important, then, that during the next three years the region come as close as possible to meeting the war production adjustments described above. That task poses some very practical problems for farm operators and it is important that those problems be understood widely throughout the region by those not only directly engaged in agricultural work but concerned with the sound economic development of the area.

The Problem of Pasture Building.—Livestock expansion is needed urgently, to permit such farm reorganization that incomes can be improved, soil erosion slowed, and fertility maintained or improved.

The inability of most soils of the region to produce a satisfactory pasture is at the bottom of all livestock expansion difficulties. This situation holds true for all parts of the Southeast with the exception of small areas such as the Central Basin area of Tennessee, which has residual soils derived from a limestone base. Unfortunately, these areas are few in number and are confined primarily to Tennessee where livestock already is responsible for a much greater proportion of total cash

farm income than is the case with any of the other States in the region. (See table I.) The region's pastures not only are naturally poor and unproductive; they are generally lacking in certain of the essential elements for livestock growth.

The fact that pastures are generally poor would not in itself constitute such a drawback were it not for the fact that pastures are extremely expensive and difficult to build. Seeding and fertilizer practices, furthermore, are complicated and must be well timed. Cost of materials alone for establishing pasture on upland Piedmont soils ranges from $15 to $20 per acre. To this cost must be added costs of fencing. If horse and man labor used in the process is valued at anything at all, it becomes immediately apparent that the total cost in materials and labor for establishing an acre of pasture amounts to a great deal—much more, in fact, than the usual value of the land on which such pasture would be established.

In the Piedmont subregion a number of farms have available small acreages of bottomland now covered with brush on which pastures could be established at a lower cost than is the case on the uplands, the costs of seed and fertilizer amounting to about $14 per acre. These available acreages are small, however, since the larger, more accessible plots of land are used for corn production by virtue of the much higher yields obtained. After pastures have become established, they must be maintained in a state of good productivity by regular fertilizer amendments and by reseeding at regular intervals. If an exceptionally productive pasture is to be obtained, it may be necessary to add as much as $10 per year in the form of nitrogen fertilizers.

A very important obstacle to pasture establishment is the possibility of a dry season, which might result in the loss of the materials used. Year-round pastures are an ideal rather than a reality. Actually, 7 to 8 months' grazing is all that may be expected, and part of this time the pasture will be of little value if a dry period, which occurs all too often, should come about during the grazing season.

The Problem of Livestock Feed Production.—With corn yields averaging around 12 bushels per acre (less in many sections) the problem of providing adequate grain for livestock is extremely serious; it requires 10 acres of corn per year to feed one pair of mules, and there is generally little corn left for the other classes of livestock. In other sections of the country as little as 2 acres of corn would provide enough grain for a pair of workstock. The small cropland base per farm and low yields make inadvisable the growing of greater corn acreages. Heavier fertilizer applications do not seem to pay in increasing corn production. The acreage of oats and other small grains for feed has been on the upward trend which should be continued if a material increase in available grain feed for livestock is to be provided.

Cottonseed is an important concentrate for livestock, but most farmers sell it to obtain cash for other purposes in spite of the fact that their own livestock need it badly.

Heat and parasites are important obstacles. While progress has been made in combatting parasites, little or nothing has been done to produce a heat-resistant dairy cow. Brahman bulls have been a factor in improving the situation with respect to beef cattle in the Florida, South Georgia, and South Alabama areas.

Controlled Breeding and Supplemental Feeding.—Most of the hogs in the Southeastern region, other than the Coastal Plains subregion, are produced for the home meat supply. National market increases will, for the most part, be limited to the Ohio Valley and the peanut sections. Pigs are farrowed in the Coastal Plains in Alabama, Florida, Georgia, and South Carolina in about equal numbers at all seasons of the year, with some concentration during the late spring. Hogging off peanuts in the fall provides the bulk of the feed. By breeding in late November or early December for late spring litters, the amount of summer feeding could be reduced, yet the pigs would be in better shape when fed off peanuts. The control of breeding will require more fencing and bringing the sows off open range.

In 1940, hog losses in the peanut sections in the deep South were very great. The losses apparently were greatest among hogs running on peanuts without supplemental feeding. Cottonseed meal, peanut meal, and tankage mixed, plus a small amount of grain, would safeguard against a similar recurrence if there is a nutritional deficiency involved. Supplemental feeding would increase the daily gain and would be profitable if the present outlook materializes.

Vaccination would increase hog production. In some communities in which veterinarians are not available, it might be possible to arrange through the cooperation of southern schools for veterinary-college students to go into these areas for a month or 6 weeks to vaccinate and to teach local people how to vaccinate properly. If Coastal Plains communities adopted a program for 100-percent vaccination, hog losses could be reduced materially.

Shortage of Dairy Cows.—It will take about 3 years to make substantial increases in cattle numbers. The need for increases is immediate. Many of the large dairies around cities and war production centers have scoured the outlying sections for cows and heifers. It appears that the region may expect a shortage of cows if it attempts to make great increases in dairy production. Unfortunately, large dairies now purchasing cows con-

tinue to kill day-old calves or sell them as veal. This method of disposing of dairy (heifer) calves will continue until cow prices reach a very high level, unless some early action is taken to place them in the hands of farmers in sections where they are needed.

It would appear feasible to establish a Government purchase price at least for the heifer calves, and to distribute them to farmers who can feed them at the purchase price plus a low delivery cost. For a number of years the Southeast has depended to a large extent upon farmers in the Piedmont and Hill sections as a source of dairy replacements. As noted above, the tendency now is for dairy men to purchase not only the heifers but the breeding stock as well. As a result the supply of dairy replacements will probably decrease at an increasing rate if some provision is not made for movement of these calves back into areas in which there is a supply of low-quality roughages. County agents or FSA supervisors could buy the calves, hold them until a truckload is accumulated, and with the State offices acting as a clearinghouse, send them into counties in which they have applications for these "refugee" calves. The purchase price and a minimum transportation cost could be charged to the farmer. The total supply of such calves could possibly be overestimated, but as prices for dairy products and feed rise, there will be a noticeable increase in the practice of liquidating them.

The Problem of Marketing in Defense Areas —A large proportion of Southern farmers are growing their present allotments of cash crops but making only partial use of the rest of their resources. In some areas the increased number of consumers brought in by industries, civilian aids in camps, and the camps themselves offer a local market of growing proportions. There are many obstacles which decrease the attractiveness of these markets as outlets for small operators. Immediate reconnaissance surveys might appraise the opportunities for developing a more diversified agriculture in such areas.

Local Farm-Labor Shortages —The fact that the labor excesses in many communities have disappeared will become increasingly apparent. Some will have moved away; others will be living in the community but working in industry. Others will have moved from the farm into town to take the places of men who have gone into the armed services or into other employment. To the farm operator this will mean higher wages than he had counted on. Experienced labor can be brought in, but only in small numbers at higher wages. More young boys and girls and older people can be employed, but only higher wages will attract them and they will be less efficient. We are reaching a period in which a surplus of labor which has been dammed upon the farm is going into other lines, and wage rates will no longer be based upon the level which could be obtained on other farms in the neighborhood, but instead upon the wages which can be obtained in other lines of production.

In many instances the continued welfare of the community will depend upon getting the crops harvested. Loans will be outstanding. Store bills will be accumulating. These commitments, other bills, and taxes will go unpaid if harvesting is not done. Communities must realize this and adjust themselves accordingly. In some communities it may be necessary to close stores three afternoons a week and to dismiss school two weekday afternoons. The farm bureaus, the chambers of commerce, service clubs, and the church organizations may have to see to it that everyone pitches in, at a fair wage, and harvests the crops. The seasonal elasticity in the labor supply in most Southern communities would be startling if it actually became a civic and patriotic duty to see that the crops are harvested. Much could be done to stimulate people in rural areas to realize the seriousness of the situation. Community effort would not solve all of our immediate farm-labor problems, but it would help.

Managerial Assistance.—The inertia of the region's prevailing farming pattern and the inability of many farmers to put into operation new and improved farming practices make desirable the employment of qualified persons in each county to act as farm consultants. Local agricultural agency representatives and these consultants could work together in assisting farmers with their management problems, with the consultants being locally available for advice and counsel. Managerial assistance is needed by so many farmers in the Southeast that very few communities can afford to do without such services.

Cooperative Ownership of Farm Equipment and Facilities.—The type of farming involved in the food-production program requires equipment and facilities with which Southeastern farms are generally unsupplied. The experience of FSA in cooperative service indicates that there are many kinds of services, equipment, and facilities needed by farmers, which no one farmer can afford to own and operate for his sole use. The necessity for such services is especially evident where farmers wish to reorganize their programs to include more livestock and smaller acreages of cash crops. Even though FSA has made progress in such work, a great deal remains to be done as services of this type could be of benefit to large numbers of farmers not within the segment of low incomes which FSA can

service. Joint purchase and use of needed equipment and facilities offers an important partial solution.

Low-Cost Financing for Development Programs.—Existing credit agencies reach a large proportion of Southeastern farmers. There is one segment of farmers—a middle group—between those with practically no equity (reached by FSA) and those with sufficient equity (generally reached by FCA) who do not have credit facilities for making desirable production shifts. These farmers, as well as all other farmers, will need considerable amounts of money to make the changes necessitated by production shifts. Barns, fences, and feed storage space are needed on a large proportion of the farms. Immediate consideration might well be given to providing loans at very low interest rates with deferred-payment provisions to meet such needs.

The Fertilizer Problem.—Tobacco and cotton farmers in the Southeast normally use a large amount of the Nation's fertilizer supply. It is one of the main cash cost elements in the production of these two crops. Under most conditions the fertilizer practices followed are a major determinant of both the yield and quality of the crop produced. Corn and small-grain production is also partially dependent upon fertilizer, in most parts of the area, but the amounts used per acre on these crops are appreciably smaller.

The general shifts expected under the conditions as outlined for the estimates in this study will be toward reductions in the high-fertilizer-consuming crops toward low-fertilizer-consuming crops. These shifts would reduce the fertilizer needs by about 8 percent if the same intensity of production were continued.

War industries and agricultural fertilizer compete for the same materials. Further, shipping limitations may make it difficult to obtain the normal supply of natural nitrates. These circumstances may make it necessary carefully to allot a limited supply of plant-food nutrients. If this occurs and a rationing system is devised, consideration must be given to variations between systems and size of farm operations and the most effective utilization of available materials.[7]

[7] The following is suggested as a system of rationing in cotton and tobacco areas. Each operating unit would be issued a fertilizer ration card, with which purchases of plant nutrients could be made from any dealer or dealers up to the basic fertilizer allotment for the farm. The normal fertilizer consumption for each county would be approximated by multiplying the averages of crops usually fertilized by the usual application rates for the area. This total would be adjusted by the ratio of a weighted average yield of the major fertilized crops in the county to a weighted average yield for the area. The adjusted normal consumption would be reduced by the ratio of the anticipated national supply to the average supply available during the period 1937 through 1939 to establish the county base allotment. The normal fertilizer consumption for each farm would equal the normal average of each crop multiplied by the usual fertilizer rates for the area. This would be adjusted by the ratio of a weighted average yield of the major fertilized crops on the farm to a weighted average yield of these crops for the county. This adjusted normal would be reduced by the percentage reduction for the county as a whole. No farm would be allotted more fertilizer than the total of the normal consumption as defined above. The total of the farm allotments could not exceed the total county allotment. The allotments would be developed in terms of plant nutrients.

The Market for Food Production Provided by Dietary Deficiencies

The foregoing production adjustment problems would be completely prohibitive without the presence of a large and as yet unsupplied consumer demand for food products.

Farm diets are greatly deficient in dairy, poultry, and beef products. Very large additional quantities of each of these products would be needed to achieve a minimum adequate diet. As indicated by table XXIX, over 1 million additional cows would be needed to supply the additional quantity of milk needed in 13 Southern States.

In addition, 2¼ million hogs, 23 million hens for egg production, and 2½ million beef cattle would be needed. About 13 million additional acres of pasture would be required for the increased livestock numbers, assuming present carrying capacity rates.

TABLE XXIX.—*Number of livestock and acreage used to produce farm food and feed, and needed increase to supply a minimum adequate diet, 13 Southern States, 1941* [1]

Item	Unit	Used for farm food and feed	Needed increase
		Thousands	*Thousands*
Dairy cows	Head	3,464	1,062
Other cattle	Head	1,508	2,418
Hogs	Head	7,281	2,296
Hens for eggs	Head	42,775	23,173
Chickens for meat	Head	98,228	43,091
Direct food crops	Acres	4,682	3,475
Grains	Acres	28,617	4,274
Roughage	Acres	7,814	858
Total cropland	Acres	41,113	8,607
Pasture (present carrying capacity)	Acres	42,783	12,985
Total acreage	Acres	83,896	21,592

[1] Population figures are for 1940; per capita food production estimates are from data secured in 1937 for 8 Southern States.

TABLE XXX.—*Approximate increase in number of livestock and acreages, 13 Southern States, needed to supply minimum adequate diet for urban population, 1940* [1]

		Thousands
Dairy cows	head	1,757
Other cattle	do	343
Hogs	do	331
Hens for eggs	do	4,131
Chickens for meat	do	11,015
Direct food consumption crops	acres	1,013
Grain	do	1,948
Roughage	do	1,815
Pasture (present carrying capacity)	do	10,542
		15,318

[1] Population figures are for 1940; per capita food estimates are from data by color and income groups secured by Bureau of Home Economics and Bureau of Labor Statistics in 1935–36 specifications of Low-Cost Good Diet assumed to represent a minimum diet level.

The farm people are not the only segment of the Southern population in need of improved diets. Large segments of urban population are also "ill clothed, ill fed, and ill housed." As table XXX indicates, even

more dairy cows and chicken for meat would be required to supply these people than would be needed for the farm people.

Over 1½ million milk cows would be required to supply the underconsuming portions of the urban population with a minimum adequate milk supply. Large increases in beef, pork, and poultry products would also be needed.

The need for livestock products by Southern urban people cannot be directly realized because the urban families do not have sufficient income to buy these products. With improvement in farm practices, farm families should be able to provide their own needs, even though they may fail in normal times to find a satisfactory market for certain of their surplus products.

There are large temporary and accumulated surpluses, as has been noted, of cotton and tobacco as well as of other agricultural products in the region. The surplus-removal programs of the Federal Government (the Food Stamp Plan, Cotton Stamp Plan, Direct Purchase and Distribution, the School Lunch Program, Low-Cost Milk Distribution, etc.) have aided materially in alleviating market congestion and will probably continue to be necessary until a more satisfactory distribution system is developed.

RECOMMENDATIONS

These recommendations are taken from those of the unified agricultural program reports of the State agricultural planning committees of the seven Southeastern States projected to meet the impact of war, as summarized, amended, and supplemented by the Regional Agricultural Planning Conference held in Asheville, N. C., in June 1941 and by the conference proceedings; such additions as are indicated in light of changed conditions are included.

Shifts of Cash Crop Production to More Adaptable Areas

The adjustment programs of the Department of Agriculture have operated to perpetuate the production of certain cash crops on many high-cost and high-hazard farms which otherwise might have had their production adjusted profitably to other enterprises. This whole question deserves careful consideration by State agricultural planning committees and legislators, and to this end the following suggestions and recommendations are offered:

1. That the chairmen of the State agricultural planning committees appoint subcommittees for the purpose of delineating the land area of the States into major resource planning areas, and that within each such area there be delineated the minor areas which are found to be high-cost and high-hazard with respect to the production of certain cash crops. It is further recommended that these subcommittees submit recommendations to State committees as to the best potential use of such high-cost and high-hazard areas. It is further recommended that county and community agricultural planning committees, in their land-classification work, be encouraged to delineate individual farms, wherever they may be found, which in their judgment are high-cost and high-hazard with respect to production of certain cash crops.

2. It is further recommended that attention and study be given to the possibility of setting up a standard or yardstick that might be used by local planning committees in determining whether or not an individual farm is a high-cost and high-hazard farm with respect to the production of certain cash crops. Such a standard or yardstick should provide for determining whether or not the high-cost and high-hazard results from depleted natural resources and other adverse conditions of the land, lack of managerial capacity, inappropriate type of farming, poor farm management, excessive indebtedness, or other related social and economic factors.

3. With respect to areas and individual farms which are found to be high-cost and high-hazard and which offer no reasonable prospect of being administered into their best potential use through private enterprise, it is recommended that consideration be given by the Congress to the acquisition of such areas and farms by the United States Department of Agriculture for conversion into their best potential use.

4. It is further recommended that there be established, for the purpose of financing the acquisition of such areas and farms, a Federal holding corporation, under the management of the Department of Agriculture, authorized to sell bonds guaranteed by the Federal Treasury. Such bonds could be liquidated through the collection of land rent and the sale of forest and other products.

5. It is further recommended that there be established within the United States Department of Agriculture, a rural conservation works program, financed through annual Federal appropriations, for the dual purpose of (1) providing needed employment to unemployed and underemployed farm workers, and (2) providing needed labor at public expense for rehabilitating the soils of, and for making necessary improvements on,

high-cost and high-hazard areas and farms acquired by the Department of Agriculture for conversion into their best potential use.

6. In the conversion of such areas and farms into their best potential use, it is recommended that farm families found living upon such areas and farms be rehabilitated thereon, insofar as this is practicable. It is further recommended that every reasonable attempt be made to save every acre for agricultural use that is capable of reclamation for such use at socially justifiable cost, and that the acreages found capable of reclamation be organized into efficient family-size farms and suitably improved and then leased to farm families residing on such acreages.

7. It is further recommended, with respect to such high-cost and high-hazard areas and farms as may be acquired by the Federal Government, that local taxing bodies be reimbursed annually by the Federal Government in an amount equal to what they would have collected in real property taxes if such areas and farms had remained in private hands.

National Farm Program

1. It is recognized that the value of agricultural land is directly related to and dependent upon the income from land, and (in the South) the price of cotton and tobacco. Value is, of course, reflected in the price placed upon land offered for sale. It is evident, therefore, that Government benefit payments attached to land serve to increase the price for which that land will sell. To the extent that this is the case, the individual who purchases a farm after the allocation of benefits has been made does not receive a return comparable to that of the original owner and pays for a "surplus award" to his predecessor.

No specific recommendation with respect to this problem is made at this time. It is suggested, however, that, in order to avoid the necessity for superimposing one Government aid-to-agriculture program upon another, each new generation of farm owners must be permitted to acquire land at a price commensurate with the productive value inherent in it, exclusive of Government subsidy. Only in this way can they realize on Government aid, and only in this way can desirable land-use adjustments be effectuated.

2. The major part of the AAA payments should be based upon conservation and other desirable farm practices or organizations, rather than on the basis of allotments of commercial enterprises as at present. The present method of making payments has perpetuated the production of crops, such as cotton, on farms where other systems of farming might otherwise have been adopted. This modification need not conflict with programs to adjust the production of specific commodities to market needs.

In short, it is felt that more emphasis should be given to positive adjustments in farming and less upon past crop history on individual farms as a basis for making AAA payments. It is recognized that administrative difficulties would be experienced in following this proposal, but it is believed that its adoption would facilitate the farm changes that Southern farmers may have to make during the coming years.

3. It is suggested that all public agricultural agencies working with farm families cooperate in the development of a basic farm plan. This basic procedure would then be used by all agencies in preparing individual farm and home plans.

Within the framework of this unified procedure, any agency could prepare a brief supplement to cover the particular phases of the farm plan to which the work of such agency pertains.

4. There appears to be a real need for a restatement and a clarification of the primary objectives of agricultural adjustment and production-control programs. Any such statement would probably include one or more of the following considerations:

(*a*) To attain and maintain parity as between agriculture and other industries, without regard to the individual farmer.

(*b*) To restore and conserve natural resources in the interest of present and future generations, both rural and urban.

(*c*) To provide much-needed assistance and to increase the opportunities of individual farm families, especially in the low-income groups.

The extent to which any one of these possible objectives is realized will, of course, depend upon the total funds available and the relative emphasis given to each. In any event, it would seem that the principle of maximum benefits to the maximum number of farmers should govern. This suggests both a "ceiling" and a "floor" on payments to individual producers.

5. The quantity and quality of school facilities available in rural areas has a powerful influence upon the future development of such areas. This is particularly true with respect to the adaptation of population pressures to available natural resources.

Because of the inadequacy of school facilities in low-income areas with large populations of school age, it is urgently recommended that additional Federal aid to schools be provided as a means of equalizing educational opportunities for rural youth. (See recommendations in the chapter "Educational Development", below.)

6. Because of the war program and the changed outlook, it is recommended that, during the years ahead, need shall be recognized increasingly as a criterion for distributing Federal subsidies to agriculture.

Federal appropriations for agriculture will not be unlimited. To make the greatest possible improvements in agriculture with these appropriations, payments for conservation or for increased production should be directed increasingly to farms and areas most in need of such aid and least able to succeed without aid. Payments made as direct supplements to farm income should be directed increasingly to low-income farm families.

Conservation of Human Resources[8]

It is recommended:

1. That the national farm program be modified to include human conservation as a major goal, by including milk and other essential food production for home use as a conservation practice on those farms not now doing so.
2. That the Congress provide an adequate rural housing program, coordinated with the work of county agricultural planning committees.
3. That county health units be established in every county in the region.
4. That the Federal Government develop and, in cooperation with the States, put into operation a program having as its objective the complete eradication of all venereal diseases.
5. That the food- and cotton-stamp programs and the school-lunch program be broadened and extended to include all low-income families, irrespective of relief status.
6. That a system of vocational industrial training and placement be developed specifically for rural areas having a surplus of farm youth.
7. That the Congress authorize the establishment of a rural work program to provide useful employment to surplus farm population following the war. The program should include such useful work as rural housing, soil and water conservation, forestry improvement, parks and playgrounds, public buildings, drainage and reclamation, and the provision of other needed rural services and facilities.

Conservation of Physical Resources

It is recommended:

1. That land classification procedures for assessment purposes be developed in cooperation with county agricultural planning committees, that the collection of delinquent taxes be removed from local control, and that tax title laws be simplified and further perfected.
2. That enabling legislation for the zoning of rural lands be enacted.
3. That areas in which agriculture cannot reasonably be expected to show a profit under any probable economic conditions be zoned against further agricultural development, and that public support of institutions and services in such areas be gradually withdrawn.
4. That public regulation of forest cuttings be established.
5. That there be established a woodland base for each farm under the AAA with funds provided to make conservation payments, and that forestry be made an integral part of the general farm plan developed by all action agencies.

Farm Labor

It is recommended:

1. That, while the complexities which stem from the differing natures of agricultural and nonagricultural employment are recognized, serious consideration should be given to extending the principles of the Nation's social security program to agricultural workers; methods should be devised to adjust farm prices and labor costs so that the principles of the Nation's wage and hours standards may be extended to farm laborers.
2. That county agricultural planning committees establish farm labor subcommittees to study the farm labor situation and to work out such plans of action as may be needed, and that the State and county farm labor subcommittees broaden the scope of their activities to include the welfare of farm laborers.

Farm laborers constitute a large segment of the farm population and have the lowest incomes and levels of living of any important segment of the national population. Furthermore, farm labor families generally have the highest birth rate in the entire national population, and hence constitute an important source of replacements for other segments of the national population. The national welfare demands that farm labor families be afforded better housing, better educational facilities, more adequate incomes commensurate with their needs, if we are to avoid a gradual deterioration of the human stock of the Nation.

Farm Tenancy

It is recommended:

1. That State and county land tenure subcommittees be organized in those areas where farm tenancy problems exist, and that the activities of these subcommittees be directed toward the following objectives:

[8] See also the recommendations in the chapters, "Educational Development," "Public Health Development," and "Housing Development" below.

(*a*) *Making tenure more secure through—*

(1) Use of automatically renewable written leases subject to cancellation not less than 6 months before the end of a crop year.

(2) Development of leases which will provide for a certain amount of compensation for the termination of tenures without just cause.

(3) Adjustment of rents and disagreements between owner and tenant by means of voluntary arbitration.

(4) Reduction of rents on farms which are too small or too poor to provide sufficient income to support the tenant family and at the same time pay rent.

(5) Public regulation of the buying and selling of farmland in order to protect the purchaser against misrepresentation and misunderstanding of land values and purchase contracts.

(6) Development of legislation to further circumscribe the conditions of foreclosure of farm property, particularly to give foreclosed farmers a pro rata part of the distress sale value of the farm in proportion to the amount which they already will have paid.

(*b*) *Conservation of farm land and improvements by use of—*

(1) Agreements and leases which will provide for compensation to tenant for improvements made at his own expense, on or before the time the tenant leaves the farm.

(2) Upward adjustment of rents where necessary to enable landowners to share in increased income of farms due to permanent improvements made by them.

(3) Development of lease provision with adequate penalties and safeguards, which will insure that both the tenant and owner make reasonable repairs and improvements to farm land and property.

(*c*) *Encouraging the development, within reasonable economic limits, of diversified and livestock farming through—*

(1) Cash rentals subject to adjustment on the basis of price changes.

(2) Use of livestock share rental agreements.

Land Reform

The farm tenancy recommendations assume that the present system of land tenure in the Southeast will continue without major change. However, a critical examination of this system is needed, in the Southeast and throughout the Nation, to determine whether it is properly fulfilling its function of enabling "man to derive from the land the maximum benefit and satisfaction consistent with the permanent maintenance of that resource." [9]

Marketing and Distribution of Agricultural Products

1. Since it is apparent in the Southeast, as elsewhere, that most major agricultural marketing problems are wider than a State can solve individually, it is recommended that agricultural agencies in the seven States pool their resources in the organization of a Southeastern Marketing Research Council to sponsor and coordinate marketing studies looking toward the development of an adequate marketing program for the region.

2. The following marketing problems are recommended for early attention by a regional marketing research council and by agencies and institutions equipped to undertake the necessary studies:

(*a*) Methods of securing an integration of the work of agricultural production specialists and of agricultural production programs with agricultural marketing programs and the work of marketing specialists.

(*b*) Factors operating to cause the loss of markets for specific agricultural products of the region.

(*c*) Effectiveness, desirability, and necessity of surplus-removal programs, exploration of new methods of surplus removal.

(*d*) Recovery of lost foreign markets and possible new trade agreements.

(*e*) Extension of the use of advertising.

(*f*) Possible savings through increased efficiency of the distribution system.

(*g*) Increased effectiveness of agricultural marketing services; improvements in marketing facilities, both in producing areas and at terminal markets.

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[9] National Resources Planning Board, *Public Land Acquisition*, Part I: *Rural Lands*, June 1940, p.1.

FORESTRY DEVELOPMENT[1]

The Forest Resource

Since early colonial times the Southeast has been dominated by a strong-willed and aggressive race bent upon taming the land to the plow. At least eight generations of men have directed their energies to clearing away the wilderness and to building in its stead an agrarian empire. Notwithstanding this long sustained effort, in great sections of the region almost unbroken forests, running into the millions of acres, characterize the landscape, forests in which the scattered little fields are as lonesome today as were those of our pioneer ancestors. In some of the oldest and most intensively farmed sections there are more wooded acres now than there were in 1860 when the tide of farming was at its flood. Insofar as land use is concerned, the Southeast remains predominantly a forest country—6 acres out of every 10 are under forest cover.

Unless one reconstructs the history of land settlement and use in the South, it is difficult to understand why, in so fine a forestry setting, our people did not long ago seize the opportunity to develop the forest wealth and build a self-sustaining economy like that of the Scandanavian countries of Europe. To begin with, the woods that lay around the Southern settler and separated his farm from that of his distant neighbor was a wilderness which fought him stubbornly for the land he wrested from it so painfully and snatched his fields back if he but relaxed his vigilance a little. It harbored his enemies and everywhere barred him from the comforts and security of urban civilization. Its bounty he took as a matter of course; his house logs, his fence rails, his fuel, the wild meat and the fruits it yielded were his for small outlay of effort.

As time went on, thin populations filled in, isolated farms became settlements, and settlements merged their boundaries; but only in a few sections in this region has the farm's invasion of the forests shown other than a pattern of infiltration All over the region the typical farm has at least one-half of its area in woods, nearly every town and hamlet nestles in a woodland setting, and there are no cities from whose skyscrapers one may not see the green canopy of the forests that ring them about.

It was not until early in the 1880's that people commenced to give forests a commercial value in themselves. Then lumbermen, from the Lake States mainly, leaving freshly desolated stump fields behind them in the North, commenced to trickle into the lower South. Within 10 years the sounds of the axe and circular saw were to be heard throughout the land. The newcomers brought with them the machine logging methods they had developed in the pineries of the North, and, buying veritable principalities of virgin forests, struck the South with a momentum that in the next 30 years turned into stump fields more than 80 percent of the old-growth timber area. Perhaps there has never been in the history of the world so extensive and complete a liquidation of a forest resource in so short a period of time.

Looking backward with our present wisdom it might be said that the South had disposed of a major asset for a mere pittance. Although the utilization of its great virgin forest was wasteful, coming as it did in the desperate and barren years that followed reconstruction, it helped to meet the crying need of the South for capital, for employment, for transportation facilities, and, above all, for more money in circulation. The sale of the timber and its manufacture and shipment brought all of these. It brought new life and renewed courage to a badly crippled region. Many of the towns and cities now less than 60 years old grew up around the busy site of some great sawmill. Whole divisions of our railroads were built by lumbermen to get their products to market. Schoolhouses, courthouses, and public facilities all over the South were built with taxes the lumbermen paid. The closely cropped acres opened new frontiers of fresh lands to farmers forced away from debilitated, washed-away acres in the older agricultural sections. If it had not been for the utilization of its virgin timber, the South could not have started its remarkable recovery until many years later.

But it was a heavy price to pay. When the South waked up to rueful contemplation of its bare stump fields—distressing evidence that its magnificent forest of old-growth timber was gone—it realized how great a sacrifice it had made. It was the general feeling then that the forests were gone forever and with them the great lumber industry they had supported. But the forest soils of the South are fertile and strong, the rainfall is dependable and abundant, and the growing season long. Fortunately too, the native forest species are fecund and hardy. Even before the last of the great mills had cut out their stands of virgin timber, they found another smaller crop of trees, ready to cut again on the areas stripped 30 or 40 years before.

[1] Prepared by Capt. I. F. Eldredge, Regional Survey Director, Southern Forest Experiment Station, Forest Service, U. S. Department of Agriculture.

Not all areas of cut-over land were allowed to follow nature's regenerative cycle. Many thousands of acres had been cut so clean that, lacking seed trees, they remain barren to this day or have come back to a worthless cover of scrub oak. On an even larger area, where sufficient seed trees escaped the axe, the resident settlers either prevented the timber from coming back at all or held the restocking to thin, open stands representing only a fraction of the potentiality of the sites.

The Present Forest Situation

The forests of the Southeast are, in the main, young stands of rather thinly stocked second growth. In some localities the species and forest types differ from those of the original forests. According to the field inventory made from 1934 through 1938 in the six States covered by the Forest Survey, and from the best information available for Tennessee,[2] 80 percent of the 119 million acres of productive forest land is occupied by stands of second-growth timber, ranging in age from mere seedlings in recently abandoned fields or in slowly rejuvenated stump lands to 40- and 50-year-old stands in the first stages of early saw-timber maturity. Many of the oldest second-growth stands

[2] Accurate and comprehensive data for six of the seven States embraced in this region are available as a result of inventories and economic studies made in recent years by the Forest Survey Organizations of the Southern and Appalachian Experiment Stations of the United States Forest Service. Less complete information for the State of Tennessee has been gathered from various sources, including the Tennessee Valley Authority.

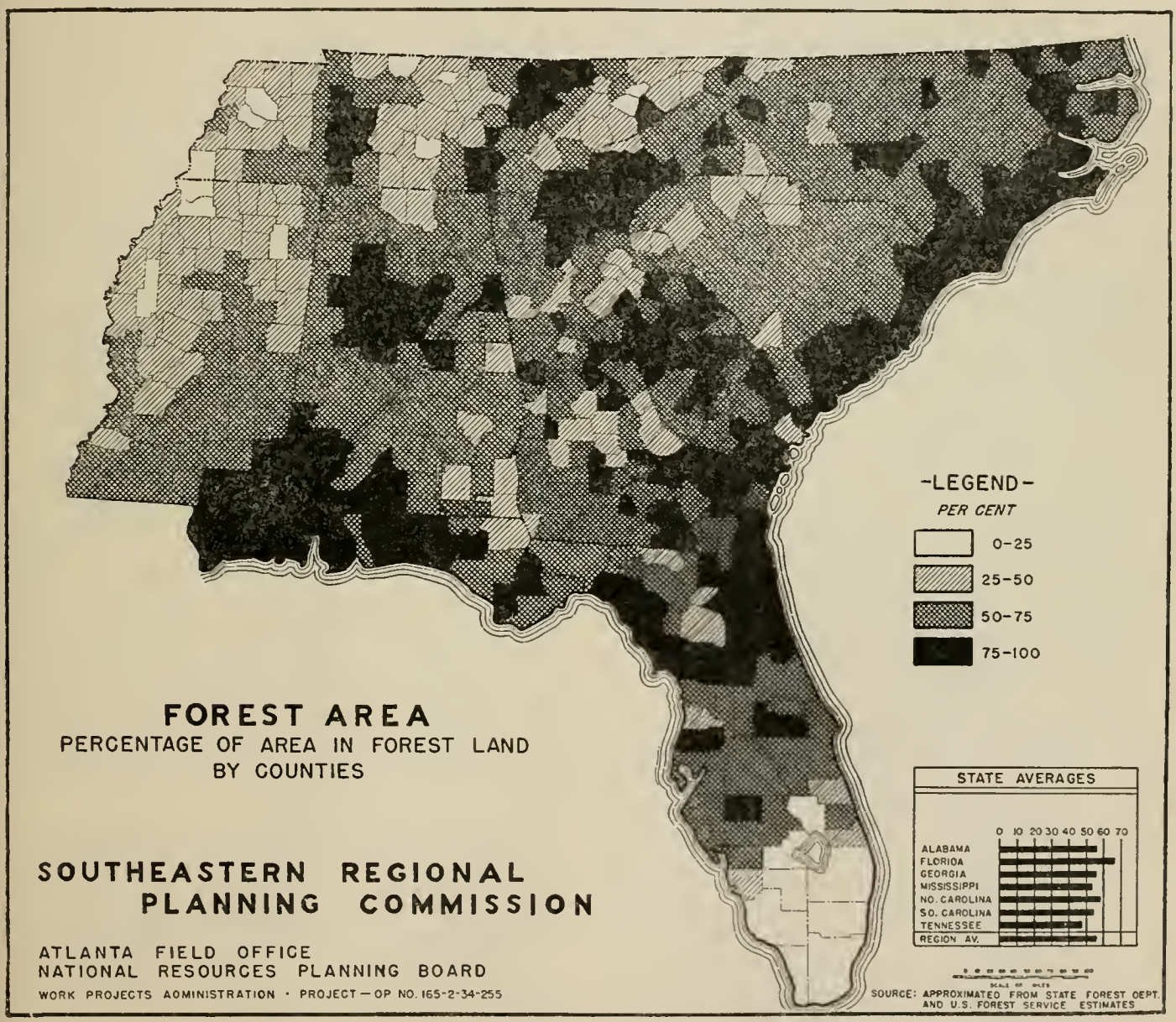

Figure 22

occupy fields that were abandoned in the lower Piedmont and Upper Coastal counties in the decades following the War between the States.

In 1937, the original virgin forests of pine, hardwood, and cypress had been reduced to less than 20 percent of the present forest area. The remnants were scattered in small tracts, frequently in places where difficult terrain or obdurate ownership saved them from the axe during the era of big mills and railroad logging. Improvement in utilization methods have come about in recent years to make the logging of small areas practicable, and stubborn owners have either passed away or changed their policies. There has been also a marked increase in the demand for the high-quality lumber of virgin stands. Except where preserved through public ownership or for parks or in the hunting estates of wealthy men, they are rapidly passing from the scene.

The land-use pattern of the Southeast in 1937 was as follows:

Total land area classified by major use, 7 States, 1937

Form of use	Distribution of total area	
	Acres	Percent
NONFOREST		
Farm:		
In cultivation:		
Old cropland	63,603,600	30
New cropland	1,462,400	1
Out of cultivation:		
Abandoned	4,528,200	2
Pasture	6,805,200	3
Total, farm	76,399,400	36
Other nonforest	14,495,900	7
Total nonforest	90,895,300	43
FOREST		
Productive (present or potential)	119,522,500	56
Nonproductive	1,836,600	1
Total forest	121,359,100	57
Total all uses	212,254,400	100

The State areas vary but little from the average given above, but within the States there is considerable variation between sections. For instance, the percentage of forest land ranges from as little as 38 percent in northern Mississippi to as much as 83 percent in west Florida. (See Fig. 22.)

Of the productive forest acreage the different forest conditions occupied the following areas and percentages:

Productive forest area by forest condition,[1] 7 States, 1937

Conditions	Acres	Percent
Old growth	14,445,600	12
Second growth:		
Saw-timber size	41,577,000	35
Under saw-timber size	48,030,300	40
Reproduction	6,869,900	6
Bare forest land	8,076,600	7
Total	118,999,400	100

[1] One-half million acres omitted for lack of information.

While foresters distinguish a large number of individual forest types or tree associations in the region, the Forest Survey grouped these into five major types:

Productive forest area by forest type group, 6 States,[1] 1937

Type group	Acres	Percent
Longleaf and slash pine	32,916,200	31
Shortleaf, loblolly, and other pine	26,873,900	25
Shortleaf-loblolly, other pine-hardwood	16,293,700	16
Upland hardwood	14,123,300	13
Bottomland hardwood	15,991,300	15
Total	106,198,400	100

[1] Data for Tennessee not available.

Figure 4 (p. 16) shows the areas characterized by the dominance of the type groups.

In tabulating the volume of sound wood material in the timber stands a statement is made, first, of the cubic contents of the total stand, all sound trees 5 inches in diameter and larger, as expressed in standard cords. In the second column the saw-timber volume, expressed in board-feet, is given for pine trees 10 inches and larger in diameter at breast height and hardwood trees 13 inches and larger. The estimates are:

Cordwood and saw-timber volumes, 7 States, 1937

	Cordwood volume of entire sound-tree-growing stock 5 inches and larger (cords)	Volume in saw-timber component of the stands (M feet board measure)
Pine	526,479,400	137,316,900
Hardwood	486,597,500	87,736,300
Cypress	31,216,900	8,527,500
Total	1,044,293,800	233,580,700

The volumes given above are those in the trees that make up the sound-tree growing stock. In addition, a total volume of sound wood amounting to 17 million cords of pine and more than 300 million cords of hardwood were found in cull trees of all species; in the tops of hardwood and cypress saw-timber trees, and in sound dead chestnut trees. The grand total for the seven States amounts to 234 billion board-feet of saw-timber or an over-all volume, in all sizes, species, and qualities 5 inches and larger, of 1⅓ billion cords. This forest resource is divided among the seven States as follows:

State	Acres	Cords
North Carolina	18,102,000	263,897,000
South Carolina	10,679,000	158,229,000
Georgia	21,035,000	249,988,000
Florida	21,653,000	138,783,000
Alabama	18,860,000	224,424,000
Mississippi	15,869,000	201,007,000
Tennessee	12,801,000	141,490,000
Total	118,999,000	1,377,818,000

Each year the tree population of the forest increases, declines, or maintains its level as do all living populations. The volume of wood in a forest is increased annually by the growth of individual trees and is decreased through removal, natural mortality, and the loss of material in individual trees caused by decay and damage. The volume increment of a forest stand is therefore the balance between growth and the combined effects of death and decay. As of 1937 the total forest increment for the seven States was as follows:

Forest increment, 1937

State	Cords	M feet board measure
North Carolina	9, 221, 000	2, 300, 000
South Carolina	5, 233, 000	1, 442, 000
Georgia	8, 752, 000	2, 503, 000
Florida	2, 300, 000	646, 000
Alabama	7, 779, 000	2, 058, 000
Mississippi	7, 813, 000	2, 093, 000
Tennessee	3, 520, 000	746, 000
Total	44, 618, 000	11, 788, 000

The annual forest increment represents the limit to which sound green timber can be removed without reducing the basic growing stock; it is the annual wood income from the forest capital. It is obvious that where the removal of wood volume is greater than the annual increment it is made at the expense of the capital growing stock. To appraise the situation in this respect one must consider the annual commodity drain upon the forests, that is, the removal occasioned by the cutting of trees for lumber, poles, piles, railroad ties, pulpwood, veneer, cooperage, fuel wood, and similar uses. The commodity drain for 1937 expressed in cords is shown below for each of the seven States in comparison with the increment for that year:

Comparison of increment and drain in cords, 1937

State	Increment	Drain
North Carolina	9, 221, 000	8, 344, 000
South Carolina	5, 233, 000	4, 310, 000
Georgia	8, 752, 000	5, 402, 000
Florida	2, 300, 000	3, 558, 000
Alabama	7, 779, 000	7, 484, 000
Mississippi	7, 813, 000	7, 312, 000
Tennessee	3, 520, 000	3, 900, 000
Total	44, 618, 000	40, 310, 000

From the standpoint of quality, the picture is less bright than appears from the above tabulation. The increment figures include growth in little trees and those of inferior species. The drain, of course, is proportionately heaviest on the bigger trees of the better species. Furthermore, much of the area is understocked to the point where it is very desirable not to cut up to the amount of the increment so that the stands may fill out.

The following table indicates the distribution of the total commodity drain among the products into which it is converted:

Distribution of commodity drain, 1937

Commodity:	Percent
Lumber	50
Fuel wood	28
Veneer, cooperage, and miscellaneous manufacturing	7
Cross ties, poles, piles	6
Pulpwood	3
Land clearing for farming	3
Miscellaneous farm use	3
Total	100

The production of lumber makes up the greatest item in the drain. In 1937 there were 11,000 sawmills in operation in the region; of these over 90 percent were small concerns. The production of fuel wood, mainly for domestic use in homes, both rural and urban, constituted the second largest drain in all of the States except Florida. It is interesting to note that in 1937 the drain due to pulpwood production was only 3 percent of the whole. By 1940, because of the opening of new pulp mills, the increased capacity in others, and greater activity in all, this drain had more than doubled the number of cords used. In the seven States the total number of primary wood-using plants was distributed as follows:

Number of primary wood-using plants, 1937

State:	Number of plants
North Carolina	3, 128
South Carolina	862
Georgia	1, 742
Florida	779
Alabama	2, 381
Mississippi	1, 752
Tennessee	3, 000
Total	13, 644

As a result of the demand for lumber due to wartime activities since 1940, the number of sawmills has greatly increased, but no recent statistics are available.

The present-day forests support a wide field of human activity. The care and protection of forest lands, the harvesting of crops of timber, the manufacture, processing, sale, and forwarding of products provide employment for men, money, and facilities in virtually every one of the 616 counties in the 7 States. In the counties of the Coastal Plain from the Virginia boundary around to the Mississippi River, these activities rank first as a source of employment and wealth. The same situation

holds true in some of the interior counties, while in others forest activities rank second only to farming.

The naval-stores industry, which produces practically all of the rosin and turpentine used in this country and in normal times a large part of that used abroad, is confined to the 50-million-acre Longleaf Slash Pine Belt, nearly all of which is located in South Carolina, Georgia, Florida, Alabama, and Mississippi. It is estimated that from 30,000 to 40,000 people are normally employed in this ancient industry. The product is manufactured in approximately 1,018 plants that distill pine gum and in 26 plants that use pine stumps.

It is estimated that at least 600,000 people are directly employed, full, or part-time, in woods, mills, and stills in the primary forest industries, including naval stores. The many thousands of additional men employed in truck, rail, and water transportation, in secondary processing, and in the care and protection of forest lands are not included in these figures.

It is not difficult to see that in the post-war period the forest-using industries, like others, may suffer a severe curtailment of activity. Fortunately the forests themselves can absorb a large part of the employment lost in the mills. The 119 million acres of woodland in this region are a truly immense reservoir of opportunity for employment in any public-works program.

Farmers, as a class, own the largest proportion of the forest land, about 44 percent of the total forest acreage. Approximately 7 percent is included in National forests, in State forests and parks, Army and Navy reservations, and other publicly owned areas. The remaining 49 percent is divided among lumber companies, pulp and paper companies, naval-stores operators, banks, insurance companies, railroads, and a host of individual nonfarm owners.

In the extensive pineries of the Coastal Plain, because of the favorable natural factors for the growing and harvesting of timber, comparatively reasonable taxes, good markets, and promising market prospects, there has been a greater growth of forestry, particularly private industrial forestry, than perhaps in any other extensive section of the United States. Spectacular developments have taken place within the last 10 years. Nearly all of the 18 large pulp and paper mills located in the coastal belt have acquired, and put under sustained-yield management, holdings ranging from 100,000 to 300,000 acres each. A number of large lumber companies, too, have put their lands under management for long-time operations. Several large holdings, set up for the production of naval stores and integrated utilization generally, have been under forestry management for 10 years or more. In the National and State forests and other publicly owned lands in the coastal section, totaling 3½ million acres, intensive sustained-yield forestry for saw timber, poles, ties, naval stores, and pulpwood is well established. In addition, a large number of small owners, including many farmers, have taken steps to protect their lands from burning and have adopted cutting and turpentining practices designed to increase and prolong their forest yields.

In the interior counties, as a rule, forestry has made much less progress. In the first place there are fewer large industrial wood-using and land-owning establishments and, in general, the forest holdings are small and often insecurely held. Much of the pine timber is in old-field stands from which only comparatively low-quality lumber is produced. The market outlets are limited and by no means stabilized. Even though the forest soils are good and tree growth rapid, the economic set-up is such as to give the average forest owner less opportunity and incentive for intensive forest practice. This is particularly unfortunate in these counties since it is here that the greatest need exists for stepping up the contribution of the forest to supplement declining or substandard rural incomes and a stagnated economy in general.

Each State in the region has a well-established but underfinanced State forest service as well as forestry specialists in the State extension services. Various bureaus and agencies of the Department of Agriculture, including the Forest Service, Soil Conservation Service, Farm Security Administration, and several other agencies are actively cooperating with the States in extending aid to private owners in fire protection, better forest-cutting and turpentining practices, planting techniques, forest research, and in many other ways. Under the Clarke-McNary Act, the Federal Government contributes annually for the protection of privately owned forest land from fire, to be matched by State and private funds. In 1938 Federal expenditure for this purpose was $366,000.

Notwithstanding this progress and effort, the region as a whole is far from being in a sound forestry position. By far the greater part of the forest land is being cut-over without any thought as to a following crop of timber. Uncontrolled forest fires, frequently purposely set, sweep periodically through millions of acres. Less than 44 percent of the forest area is under organized fire protection, and the annual loss of usable material due to fire, insects, and disease is staggering. The table above, in which a comparison of growth and drain is given, indicates that in 1937 the region was removing its timber almost as fast as it was being replaced through growth. When the figures are available for 1941–42 they will show that this slight margin on the right side

of the ledger has been lost and that at present we are reducing the basic growing stock. While initial information indicates that the extraordinary war drain will be felt more heavily in some sections than others, the Southeast has as yet suffered no irreparable inroads in its total growing stock. There can be no doubt, however, that in some sections the supply of saw timber has been subjected to such heavy overcutting that a decade and more must elapse before the damage can be repaired and the normal timber-producing capacity restored. It would be highly desirable if heavy war orders for lumber and other forest products could be so allocated as to avoid serious overcutting in local situations.

If it were just a matter of adjusting the annual cut to keep within annual growth, the situation would not be serious. The present overdraft is not fatal in general if not prolonged; it could be reduced, without much difficulty, to balance the budget. But the full weight of the forest resource must be brought to bear in the solution of the knotty problems that beset the region, and reducing the cut will not accomplish this. To serve its purpose in the further industrialization of the region, more rather than less timber must be cut and processed. We must balance an increasing budget by growing much more timber.

In the Southeast, as generally throughout the South, the increasing pressure on the land by a growing, hemmed-in rural population has brought about serious economic maladjustments that threaten the continued growth and security of the whole region.

The decline of cotton culture in the region in recent decades does not explain its present malady; the basic explanation is that our country population has been and still is increasing faster than the opportunity for its gainful employment. Either a considerable part of this population must migrate from the region, or other sources of employment must be found. To anyone familiar with the people involved and the opportunities open to them elsewhere, the first alternative is only a partial solution of the problem. We must find permanent jobs and occupations for a considerable proportion of our rural population in activities other than farming.

Forests of the Future

The most logical solution appears to be in greatly increased industrialization; there must be more mills, shops, and factories, more men employed in commerce, in shipping, and in the mines and forests. There is hydroelectric power in abundance. Transportation and shipping facilities are at hand. Labor is available, the needed capital can be had, and raw materials for processing are in great abundance. Of the many natural resources, none is more prominent than the 119 million acres of strong forest land. Such an industrial development as the South must have to achieve permanent parity with its sister States of the Nation cannot be based on its forest resource alone, but its forests can be made to contribute powerfully to this development.

While farming may stage a comeback with different crops, rehabilitated soils, new markets, and a reformed pattern of ownership, none of this region's other great resources can be more fully used than its forests and, at the same time, be made to increase in both volume and value. The Forest Survey made a study in each one of the 26 Survey units into which the six lower States of the region were divided and found that, in comparison with the potential stands that could be supported by the forest sites involved, the present stands are less than one-half stocked. Given time and the proper treatment, the forest stands can be built up to something approaching their full potentiality and their annual yields increased 75 to 100 percent.

Merely increasing the amount of timber annually available for utilization will not aid enough in the solution of the problem. To furnish adequate employment for labor and capital and to bring to the region the full value of the resource, the forest industries must do more than turn out wood in a convenient form for shipment; they must go far along the road of turning out finished goods ready for consumer use. No real or lasting good will be gained by increasing the number of sawmills, particularly the little transient mills that return the minimum of values to timber owner, mill owner, and the community. We must have more paper mills, furniture factories, veneer mills, rayon and plastic plants; we must make soap from our rosin and paint from our turpentine instead of shipping it north in barrels. In short, we must shake off forever that colonial economy that has hampered us throughout our history, and manufacture for our own use and for shipment to outside markets finished goods that will bring to us a greater share of the Nation's wealth. In this way only can the raw material of the forest furnish greatly increased employment at skilled-labor wages; combine and use other Southern raw materials like sulphur, salt, clays, and lime; furnish more adequate local markets for our own manufacturers; and give more tonnages for railroads and ports and more outlets for power and fuel. With rehabilitated forests producing something like their potential yields of raw material for manufacture by industries turning out finished goods, this great resource can be made to contribute its full weight in carrying the people of the Southeast forward to a better and more secure living.

RECOMMENDATIONS

To sum up the situation in a sentence: There is enough productive forest land in the Southeast to supply the present needs of industry and to serve as a sound base for a greatly increased industrialization, provided the natural potentiality of these forest lands is developed through proper management, adequate protection, and widespread, well-integrated utilization. The forest lands of the region are owned or controlled by many thousands of individuals and corporations and several public agencies, and the range of physical factors, economic circumstances, and objectives of management among owners is almost unlimited. To bring about the widespread knowledge and practice of good forestry needed to rehabilitate growing stock and increase annual yields to something approaching the potential, many different people, agencies and interests must take an active part in a coordinated region-wide effort in which many problems must be solved and many obstacles overcome.

It is a formidable task to wean a whole people away from its traditional pioneer attitude toward its forests and build up in its place a concept of and a desire for forestry as a major industry. It may take decades of patient effort, but its accomplishment is so vital to the people of the region that there is no alternative but to undertake it. As a matter of fact, the movement for better forest practice is, as pointed out in a previous section, well underway. At least it may be said that a good start has been made. In all of the States, public agencies, both State and Federal, have been at work for some years to bring about a general understanding and acceptance of forestry, and they have much to show for their efforts. A forestry consciousness has come into being, and in various parts of the region forest landowners have embarked upon a program of timber management.

The objectives of a region-wide effort to make the forests play their full part in the region should be: (1) To grow on every acre of true forest land, at lowest cost and in greatest volume, the most valuable commodities the site will produce; (2) to protect forest properties and investments from preventable losses due to fire, theft, insects, and disease; (3) to remove or ameliorate man-made obstacles to the stabilized ownership necessary for long-time forest management, such as burdensome taxes, discriminating freight rates, and unfavorable credit terms; and (4) to develop, simultaneously with the other objectives, stable and diversified wood-using industries, of a high degree of processing, throughout the region that will provide profitable sustained markets for all of the products and byproducts of the forests.

The landowners of the region, their tenants and managers, are most directly concerned in this program, but the forest-using industries are coming to realize that they, too, are just as greatly interested. The general public has not fully grasped the fact that it, also, has a large and important stake in the enterprise; that it stands to win or lose as the resource grows or dwindles. The part that each of the major elements involved has to play in the effort to rehabilitate the region's forest assets and gear its wealth-producing capacity fully into action is set forth in the following paragraphs:

What the Forest Owners Should Do

1. The first step, and an essential one, is to obtain and hold a complete control of the forest-fire situation in order that the hard-earned fruits of long effort may not be nullified or subjected to unbearably high risks. Effective protection must start with and be based upon the intelligent understanding and the will-to-do of the forest owner.

2. Forest landowners should aim to build up both the volume and the quality of the growing stock on their individual holdings through proper silvicultural practices. The action required will vary in different forest types, sites, and conditions, but in general will require the thinning of dense young stands, the removal of defective and slow-growing individuals, the harvesting of trees only when they are financially mature, the planting of seedlings in forest openings and abandoned fields, and the encouragement of natural regeneration to fill in understocked stands and cut-over areas. In harvesting, owners should for some time cut somewhat less than the growth, leaving some of the best to accumulate and enrich the basic growing stock. Landlords should require tenants to practice good husbandry in the woods as in the fields, and tenants should be reimbursed for the effort and sacrifice made.

3. Owners should be thrifty in harvesting stands and reduce waste of material in woods and mill and loss of income due to such poor practices as cutting pulpwood for fuel, saw timber for pulpwood, and pole and pile trees for lumber. The wood-using industries must cooperate in this phase of the effort if forest owners are generally to be successful.

4. Owners should develop to the fullest extent supplementary uses of the forests to increase the income or benefits to be derived from stock grazing, game birds and animals, recreation, and the protection of their fields from erosion.

5. To further their common interests, private owners should organize cooperative associations and pool their efforts to get better protection from fire and theft; to employ technical advice concerning forestry measures; to develop favorable marketing opportunities for their products through group bargaining, selling and shipping; and to make more effective the influence of forest landowners in matters having to do with public appropriations, taxes, freight rates, and law enforcement.

The Part of the Wood-Using Industries

To the extent that they own forest land, lumbermen, pulp and paper manufactures, naval-stores processors, wood preservers, and other forest industrialists are included in the section above. To a large extent all are purchasers of raw material from land other than their own. Without exception, it is to their own interest to assist in every reasonable way to increase, improve, and perpetuate the timber supply on the lands tributary to their plants, regardless of ownership. This aid might follow these lines:

1. Give moral and financial support to local, State, and Federal programs designed to increase protection from fire, trespass, and destructive forest practices.

2. Encourage in every way possible the practice of good cutting methods in harvesting timber from the lands around them, whether the cutting is done by the owner, a contractor, or the company's own force, to the end that the forest may be kept fully productive.

3. Reduce waste of sound material in woods and mills and develop industrial uses for such low-grade material as is now left to rot in the woods or is burned at the plant. A greater use of second-growth hardwoods is especially needed throughout the region.

4. Pass on to the grower of the wood as large a share of the realization value of the manufactured product as the industry can bear and still make a reasonable profit. In the long run a fair return to the forest owner will do more to encourage good forest management, and thus maintain large supplies of raw material at reasonable prices, than any other action the non-land-owning forest industries can take.

What the States Should Do To Assist

1. The States should extend organized fire protection under the Clarke-McNary law into every part of their forested sections. They should maintain adequately manned and equipped services both to prevent and to fight forest fires. To meet the cost of this essential activity, greatly increased appropriations must be provided.

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2. The educational activities in forestry of such State agencies as the Forest Services, Extension Services, Agricultural Experiment Stations, public schools, colleges, and universities should be coordinated and greatly strengthened. The efforts of these State agencies should in turn be supplemented by and coordinated with those of the Federal agencies and with law-enforcement agencies such as the courts and the police. While the main educational effort should be directed to forest owners and the wood-using industries, the general public should also be made fully conscious of the significance of good forest management in their continued welfare. Much has been done by the States in past years along these lines, but the field lies open for much further cultivation.

3. In each State the forest resource should be fully and wisely taken into account in the development of forward-looking industrial programs. The purpose should be to encourage the establishment and operation in each section of every State of as many wood-using plants, of right size and kind, as the forests are capable of sustaining on a stable basis. A special effort should be made to obtain industries that produce goods in more or less finished form, such as furniture, prefabricated houses, boats, boxes, barrels, wallboards, woodenware, paper products, rayon, paint, soap, plastics, and chemicals.

4. The States should continue to encourage landowners to establish forest plantations on abandoned fields, particularly in the Piedmont and mountainous regions where soil erosion is a problem, and also on clear-cut forest lands where natural reproduction is either slow or lacking. They should make it easier for all landowners, both agricultural and industrial, to obtain planting stock at cost, and in adequate quantities from State nurseries, with provision where needed for expert supervision and advice in planting operations.

5. State and county tax laws and tax-assessment and collection practices should be critically examined with the object of removing unfair burdens from forest lands, actual or threatened, one of the major problems in the way of long-time forest management.

6. Some forests should be owned and operated by the States, primarily as demonstrations of good forest management in each of the major forest types within their boundaries. State-owned forest parks, recreational areas, and game refuges should be extended to serve more adequately the growing need of a highly mobile population for healthful outdoor recreation.

7. In every State there is a general lack of observance on the part of the general public of the property rights of forest owners. The laws regarding trespass are reasonably adequate in most States. The need is, first,

to educate citizens to a keener regard of these rights, and, second, to strengthen greatly the enforcement of the law. An actual or prospective owner of a forest property cannot be expected to maintain or initiate a long-time enterprise in which the basic investment is continually vulnerable to the lawless or irresponsible action of his neighbors or the ignorant or careless whims of the passersby. The lax attitude towards the forests inherited from our pioneer ancestors must give way to a more enlightened appreciation of their value to the community before this preventable but very prevalent hazard to forest management is removed.

8. In anticipation of a possible post-war period of unemployment and distress, the States should include in their public-works reserve the projects that exist for employment in constructive and well-worthwhile work in improving and protecting forest stands and in making them more accessible. Such work should be planned in advance on a large scale and should involve private lands as well as public.

9. The States should carefully appraise the progress of forest management, or the lack of it, on private lands within their borders. The cutting practices of many private owners, especially the larger ones, in all the States are improving and in many cases are sufficiently good to leave the land in a productive condition; it is to be expected that many landowners will ultimately practice good forestry. Notwithstanding these evidences of progress, there is still a large proportion of owners who, because of ignorance, indifference, or the heedless pursuit of quick profits, employ or tolerate methods of cutting that seriously threaten the continuity of forest production that stands behind and guarantees community and industrial security. The States, as guardians of the public interest, should enact legislation designed to limit the degree to which the productiveness of forest lands may be reduced or destroyed by the action of the owner. Any threat to a resource of such significance to essential industries and utilities, and thus to the people as a whole, cannot long be allowed to exist.

What the Federal Government Should Do To Assist

1. The Federal Government should greatly increase its share of the appropriations for cooperative fire protection under the Clarke-McNary Act so that sufficient funds may be available to meet the growing requirements of the situation. Cooperation in organized protection from forest fires should be extended to and required of every forest owner in the seven States.

2. The Federal Government should increase its financial and technical aid to the extension agencies of the States and should supplement their efforts by giving advice in forestry practices and timber utilization to those forest landowners not reached by the States.

3. The present national forest areas throughout the region should be extended by purchase or otherwise to include land on which farming is submarginal and which should be permanently removed from tillage, and land that should be kept in forest cover to prevent or control floods and soil erosion, where such areas are not attractive to private or State ownership for long-time forest management. Additional national forest purchase areas should be established throughout the region wherever extensive areas of forest land of the character described are to be found, and where, in crucial industrial regions, large-scale public ownership of forest lands is necessary to guarantee the permanent flow of raw material needed to sustain industrial communities.

4. The Federal Government should provide liberal appropriations under the authorization granted by the Fulmer Act for the establishment and administration of State forests and should provide financial assistance and technical aid in the development of county, municipal, and community forests.

5. In cooperation with the States, the Federal Government should continue throughout the region to reclassify lands now used for farming that are unfit for that purpose.

6. In the agricultural aid and control program of the Government, timber growing should be recognized as an agricultural activity and given the same benefits, subsidies, concessions, and credit facilities as are other crops of the soil.

7. In preparing for a possible post-war period of wide-spread unemployment, the Federal Government should cooperate through the proper agencies with the States in building up a large public-works reserve including the protection and improvement of both public and private forest lands and the construction of public facilities such as highways, fire breaks, lookout towers, dams, reservoirs, power plants, buildings, etc., that will serve to increase the value and the service of the forest resource in the future.

8. The research program of the Forest Service of the United States Department of Agriculture, the recognized agency for forest research, should be speeded up in all of the major forest types of the region, and in all stages of forest management including planting, forest protection, and stand improvement; in the field of forest economics including utilization, products, marketing, and finance; in the field of forest influences including soil and water stabilization; and in supplementary uses such as wildlife management, open-range stock grazing, and recreation. A new forest experiment station should be established at a convenient point in Georgia or Alabama to concentrate its efforts in the three States of

Georgia, Alabama, and Florida, where rapid progress in forestry requires more attention than can be given from the existing widely spaced stations at Asheville, N. C., and New Orleans, La.

9. The Forest Survey of the United States Forest Service should be extended as soon as possible to the State of Tennessee and a reinventory of the forests and an economic study of the forest industries of all of the States in the region should be made within 10 years after the initial survey in order that crucial situations may be ascertained, trends studied, and suitable measures recommended.

10. Supplementing governmental activities designed to aid private owners in building up and conserving their forest stands, it is necessary that legislation be enacted to give the public a strong measure of control over cutting practices on private land. In its report to the Joint Committee of Congress on Forestry, the Federal Forest Service has recommended a program of constructive legislation including public regulation of private cutting practices. Control legislation along the lines recommended, with adequate enforcement, should assure the continuity of the forest resource.

The forest resource means so much in the continued development of the region and the Nation, and is so vital to the welfare of the people in so many ways, that it is our prime duty to guard it jealously against deterioration or destruction. There must be no break in the flow of raw material to maintain industry; indeed, the Southeast must look forward confidently to a continued and material increase in the volume of the flow if it is to expand its industrialization. We should put to rest any doubt that the forests will play their full and significant part in helping the people of this region to achieve security and prosperity.

WATER RESOURCES DEVELOPMENT[1]

The depression of the 1930's, and, more especially, the outbreak of the second World War have brought strikingly home to the Southeast a clear conception of the value of its water resources. As a means of absorbing unemployment and of providing economic opportunity for the people of the Tennessee Valley, during the early part of the decade the Federal Government launched the first large regional effort in the multiple-purpose use and unified development of the Tennessee River under the Tennessee Valley Authority. In the great flood of 1936, with only a few of its multiple-purpose dams completed, these developments served directly to reduce considerably the flood crest in the Ohio and Mississippi Rivers. More recently, as the completion of dams and attendant locks has progressed, an increasing volume of heavy and bulky goods, oil, grain, gasoline, automobiles, sand and gravel, textile goods, has moved up and down the river with substantial savings in transportation charges to shippers in the Southeast and elsewhere in the Nation. The outbreak of war and the increasing power demands of war industries, especially for materials produced by electro-metallurgic processes, such as aluminum, have found ready use for the newly generated power, which has permitted the establishment in the Southeast of many new industries of a type with strong possibilities of permanence.

The navigable streams of the region, with imminent overtaxing of highway and rail transportation, have come to play a dominant part in the war effort. Ships are built with steel from the mines and mills of northern Alabama shipped by barge to Mobile. The physical feasibility of interconnecting the Atlantic and Gulf coastal waterways has led over years past to the development of the Intracoastal Waterway. Its use during normal times has been a major aid to coastwise commercial shipping. With the threat of large wartime shipping losses, the Intracoastal Waterway promises to fulfill in a very spectacular way the primary purpose for its development—the provision of a route for military and naval and war industrial shipping.

Water resources of the Southeast are serving the region and the Nation importantly both in the development of a more prosperous life and in the struggle against Axis aggressors. These resources, moreover, are only partially developed. Perhaps no other single resource holds as much promise for the region, in terms of new industries, inexpensive new transportation facilities, and more diversified land-use practices, given carefully conceived development. The development of those resources constitutes one of the soundest lines of private and governmental activity in the period of post-war adjustment. The investment of private and public funds in a program of water resources development for the region after the war promises to return itself many times over, both directly and through the extensive industrial and commercial activities which find their base in economical and efficient power and transportation which that investment will stimulate.

The Southeast, in its increasing urbanization and industrialization over the last two decades, has come also to realize, if only partially, that the unlimited and disorderly use of its abundant water resources creates grave problems. Community and industrial ground-water supplies, especially along the Atlantic and Gulf Coastal Plains, have been seriously and unnecessarily depleted through wasteful practices. Supplies elsewhere, especially those of inland cities dependent upon surface waters, have been seriously reduced in usefulness through stream pollution. Costly purification processes have become necessary.

The heavy precipitation which provides the basis for the region's valuable resources in water creates other problems. Vast areas of land require drainage before they can be adapted to agricultural or other uses. Large expenditures made in drainage facilities have often been lost through improper maintenance. Again, warm climate and heavy precipitation have conspired to create one of the major health problems of the region in the high incidence of malaria, transmitted by swamp-bred mosquitoes.

The development of the region's water resources, the conservation of its supplies, and the solution of its special water problems present no insurmountable technical problems. Rather, they require, in the main, only a wide understanding throughout the region both of the opportunities and the safeguards which are involved. From a public opinion adequately informed will come the stimulus for the wise use and protection of this rich regional endowment.

Navigation

The Southeast has numerous natural harbors and navigable waterways along both its Atlantic and Gulf coast lines. Many of the rivers are large enough to

[1] Prepared by LeRoy L. Hidinger, water consultant, National Resources Planning Board, Region III, with the assistance of the water consultants and staff of the Atlanta Field Office, National Resources Planning Board, and the staffs of the U. S. Army Corps of Engineers, and the Federal Power Commission.

carry barge-transported commerce into the interior of the area, many miles from the seacoast, and still other rivers can be made navigable as multiple-purpose projects are developed where there is storage for water available for navigation during low flow periods.

Ports

The ports of the region possess obvious locational advantages for both import and export trade with the Latin American Republics. Any reasonable post-war world order will require more intensive use of existing harbors, and perhaps the improvement of others when anticipated Latin American and other foreign commerce reaches mature proportions. The improvement of inland waterways will surely follow in the wake of expanding industrial activities, and will add to the use of port facilities.

To provide for existing and also future trade there are numerous harbors along both the Atlantic and the Gulf Coasts for seagoing ships and many others with ample depth to accommodate coastwise trading vessels. The region's harbors with attendant facilities for seagoing vessels, together with the depth of water in each harbor, are located at the following places:

	Depth (feet)
Morehead City, N. C	27
Wilmington, N. C	30
Charleston, S. C	30
Savannah, Ga	30
Brunswick, Ga	27
Fernandina, Fla	28
Jacksonville, Fla	30
Ft. Pierce, Fla	27
Hollywood Harbor, Fla. (Port Everglades)	35
Miami, Fla	30
Key West, Fla	26
Charlotte, Fla	30
Tampa, Fla	30
Carabelle, Fla	25
Port St. Joe, Fla	27
Panama City, Fla	27
Pensacola, Fla	32
Mobile, Ala	32
Gulfport, Miss	27

To the staff of the Southeastern Regional Planning Commission, the improvements listed below appear necessary to care for commerce which war conditions have increased considerably. Most of these have been recommended by the Chief of Engineers, United States Army, and authorized by Congress:

(1) *Winyah Bay, S. C.*—Change the existing project at Winyah Bay by providing a channel 27 feet deep from the Atlantic Ocean to a turning basin in Sampit River at an estimated cost of $1,260,000.

(2) *Charleston Harbor, S. C.*—Provide a depth of 35 feet from the Atlantic Ocean to the port terminals on Cooper River, and a 10-foot channel in Shen Creek from Hog Island Channel to a point 250 feet upstream from the Mount Pleasant Wharf, at a total estimated cost of $465,000.

Modify the existing National-Defense project for Charleston Harbor by providing an anchorage area 30 feet deep in the water area between Castle Pinckney and Fort Moultrie at an estimated cost of $1,820,000.

(3) *Canaveral Harbor, Fla.*—Construct at Canaveral, Fla., a turning basin 27 feet deep and 1,000 feet wide with an average length of about 1,900 feet, located near the easterly shore of Banana River and enclosed by a dike; an entrance channel 27 feet deep and 300 feet wide extending from the turning basin to deep water in Canaveral Bight, protected at its seaward entrance by jetties to the 12-foot-depth contour; a barge canal 8 feet deep and 100 feet wide from the turning basin to the Intracoastal Waterway; and a lock 50 feet wide and 250 feet long at a suitable point on the barge canal, at a total estimated cost of $1,661,000; local interests should contribute one-half of the cost.

(4) *Savannah Harbor, Ga.*—Provide for widening the present channel in the vicinity of the Atlantic Coast Line Railway terminals and for deepening the authorized channels above the Seaboard Airline Railway Bridge from 26 feet to 30 feet, at a total additional cost of $281,000.

(5) *St. Augustine Harbor, Fla.*—Complete the authorized project by constructing a steel sheet piling sand trap groin on the north side of the entrance to the harbor.

(6) *Miami Harbor, Fla.*—Alter the existing project by providing an additional approach channel and turning basin to give access to a series of new docks to be constructed by the City of Miami on the northwest side of Virginia Key, at an estimated cost of $3,275,000.

(7) *Mobile Harbor, Ala.*—Provide a channel 27 feet deep and 125 feet wide from the Mobile River channel at its mouth, through Garrows Bend to and including a turning basin of the same depth, 800 feet long and 250 feet wide at an estimated first cost of $57,000; to serve the new Army depot and air field in the vicinity of Arlington pier, provide for the extension of the recommended channel through Garrows Bend at a width of 125 feet to and including a turning basin 800 feet long and 600 feet wide, all 27 feet deep, at an estimated first cost of $55,000.

The Congress has authorized surveys and studies on harbors at Pensacola, Fla., Pascagoula, Miss., and Gulfport, Miss., to determine the feasibility and cost of deepening for seagoing ships.

Intracoastal Waterway

The Intracoastal Waterway provides a protected navigation channel following a series of sounds, rivers, and harbors along both the Atlantic and Gulf coasts for the use of small craft that cannot operate on the open ocean or gulf without danger from submarines and from storms. This waterway is especially valuable for the distribution to various ports along the coasts of shipments that originate in the interior of the region. It will become increasingly important as new industries move into the region.

The Intracoastal Waterway has been completed along the Atlantic Coast from the Virginia-North Carolina State Line to Florida Bay, 60 miles southwestwardly from Miami, Fla., with a minimum base width of 90 feet and to the following depths: From Virginia–North Carolina State Line to St. Johns River, Fla., 12 feet; from St. Johns River to Miami, Fla., 8 feet; from Miami to

Florida Bay, Fla., 7 feet. It has also been completed from the western boundary of the region at Pearl River on the Louisiana–Mississippi State Line to Carrabelle, Fla., a distance of about 340 miles, with a 9-foot depth and 100-foot base.

It has been recommended by the Chief of Engineers of the United States Army that the uncompleted part of the Intracoastal Waterway between Apalachicola Bay, Fla., and St. Marks River, Fla., be completed with a depth of 9 feet and a width of 100 feet at a cost of $515,500, and that another section of the Intracoastal Waterway be constructed from the Caloosahatchie River, Fla., to the Anclote River, Fla., to include the existing projects for Sarasota Bay, Caseys Pass, and a channel from Clearwater Harbor through Boca Ciega Bay to Tampa Bay to a depth of 9 feet and a bottom width of 100 feet, at a cost of $3,200,000. The development of the war and consequent shipping losses along the Atlantic and Gulf coasts will make these improvements in the protected Intracoastal Waterway increasingly imperative.

Navigable Rivers

As the Intracoastal Waterway links the harbors of the Southeast together, the rivers of the region link the harbors with the hinterland and the hinterland with the oil wells, the heavy industries, and the grain lands of regions to the west and to the north. River transportation is especially well adapted to the low-cost movement of heavy and bulky freight where speed is not an important factor. When the Nation's transportation system is generally overburdened, as at present in connection with war activities, water-borne commerce in the inland waterway system may be expanded more quickly and to a greater degree than overland commerce.

The navigation facilities introduced into the multiple purpose dams of the Tennessee Valley Authority provide a spectacular example of the increasing usefulness of river transportation under modern industrial conditions. During the first 8 months of 1941, with navigation facilities not as yet wholly completed, 2,200 automobiles valued at approximately $1,540,000 were delivered to Guntersville, Ala., from Evansville, Ind., down the Ohio and up the Tennessee Rivers to be distributed in Alabama and Georgia. During the same period barges from Central Western ports moved approximately $1,756,000 worth of grain into the Tennessee Valley, and 33,000,000 gallons of petroleum products, largely gasoline from Illinois refineries, valued at approximately $2,025,000, were moved as well. These transportation benefits result in major savings in distribution costs and are not confined to cities bordering the Tennessee River. Thus, for example, careful studies reveal that automobile dealers in Cartersville, Ga., would save from $1.60 to $10.80 per ton on shipments of automobiles on the above arrangement; the people of Athens, Ga., would save $2.88 in transportation charges on each ton of cereals shipped in, while the community's cotton rope manufacturers would profit by reductions as high as $3.92 per ton on the outbound movement of their shipping. Numerous similar instances might be cited of possible savings in in-bound and out-bound transportation charges for many Southeastern communities both outside and within the Tennessee Valley. Since the computations were made on the basis of existing traffic, increased traffic will result in even greater savings. Under existing regulations making it madatory that in through rates common carriers by water and rail join upon application of either party and compliance with specific technical provisions, it is anticipated the savings latent in increased use of river transportation will be widely diffused over the region.[2]

There are numerous rivers in the Southeastern States which are now navigable and many others which can be made navigable by the installation of locks and dams, and with an increased supply of water from storage in multiple-purpose projects in connection with the development of power or flood control or both. Some of the more important navigable streams are the following:

Waterway	From	To	Length	Depth
			Miles	*Feet*
Chowan River	Albemarle Sound	Junction Blackwater and Nottoway Rivers.	48	9.5
Roanoke River	do	1 mile above Plymouth, N. C.	10	12
Do	1 mile above Plymouth, N. C.	Hamilton, N. C	53	10
Do	Hamilton, N. C	Palmyra Landing, N. C.	18	8
Do	Palmyra, N. C	Weldon, N. C	50	5
Pamlico, Tar Rivers	Intracoastal Waterways	4 miles below Greenville, N. C	47	12
Neuse River	do	Newbern, N. C	24	12
Cape Fear River	do	Fayetteville, N. C	115	8
Waccamaw River	do	Conway, S. C	15	12
Pee Dee River	do	Smith Mills, S. C	33	9
Cooper-Santee Rivers	do	Junction Congaree and Wateree Rivers.	120	10
Savannah River	Savannah Harbor	Augusta, Ga	199	6
St. Marys River	Mouth	Crandall, Fla	12	17
St. Johns River	do	Jacksonville, Fla	28	30
Do	Jacksonville	Palatka, Fla	55	13
Do	Palatka	Sanford, Fla	90	8
Do	Sanford	Lake Harney, Fla	25	5
St. Lucie-Caloosahatchie River.	Stuart, Fla	Punta Rosa, Fla	163	6–10
Sarasota Bay	Sarasota, Fla	Tampa, Fla	20	7
Clearwater Harbor	Clearwater, Fla	Tampa Bay, Fla	26	5–8
Apalachicola River	Mouth	Florida River	45	6
Mobile, Tombigbee, Warrior Rivers.	do	Port Birmingham, Ala.	426	9
Pascagoula River	Dog River	Dead Lake	32	7
Pearl River	Mouth	Bogalusa, La	60	6
Mississippi River	do	20 miles above Baton Rouge, La.	260	35
Do	20 miles above Baton Rouge.	Cairo, Ill	823	9
Tennessee River	Mouth	Knoxville, Tenn	648	9
Cumberland River	do	Carthage, Tenn	308	6

[2] "The Tennessee River Goes to Town", an address by Chairman David E. Lilienthal, of the Tennessee Valley Authority, before the Rotary Club, Atlanta, Ga., October 6, 1941. For detailed figures on potential savings in transportation charges to Atlanta consumers on various products moved on the Tennessee River, see Appendix, table VIII.

Increased industrialization will place the region in a position to make much more complete use of, and effect major savings in distribution costs through, river transportation. Industrialists, financiers, wholesale and retail merchants, and all interests concerned with the development and planning of a sounder regional economy may well take increased interest in the building up of regional river transportation facilities to the point of their maximum usefulness. Studies by the Army Engineers have indicated the following projects as desirable to that end; most of them have been recommended for construction by the Chief of Engineers of the Army and authorized by Congress. These projects appear to the staff of the Southeastern Regional Planning Commission to be in harmony with a sound regional development plan.[3]

(1) *Pembroke Creek, N. C.*—Construct a channel up Pembroke Creek 80 feet wide and 12 feet deep from the improved channel in Edenton Bay, N. C., upstream 500 feet; thence 50 feet wide and 8 feet deep to the wharf of the United States Fish Hatchery, at an estimated cost of $9,500.

(2) *Pughs Channel, N. C.*—Improve the channel from Pamlico Sound to Rodanthe, N. C., by widening to 100 feet and deepening to 6 feet, and constructing a basin with arms at the shore end, all at an estimated cost of $5,000.

(3) *Avon Channel, N. C.*—Construct a channel from Pamlico Sound to Avon, N. C., 100 feet wide and 6 feet deep with a turning basin at the shore end 100 feet wide and 300 feet long, at an estimated cost of $16,500.

(4) *Rollinson Channel, N. C.*—Improve the project for Rollinson Channel by providing a channel 100 feet wide and 6 feet deep from Pamlico Sound to the wharves at Hatteras, N. C., and constructing a basin in front of the wharves, all at an estimated cost of $27,000.

(5) *Swan Quarter Canal, N. C.*—Provide a channel 60 feet wide and 8 feet deep, extending from Deep Bay through the present waterway to Swan Quarter Bay, thence through the Swan Quarter Canal, and also construct a basin 500 feet long and 60 to 300 feet wide at the head of the canal, at an estimated cost of $22,500.

(6) *Thoroughfare Bay, N. C.*—Improve the existing channel connecting Thoroughfare Bay with Cedar Bay by providing a depth of 7 feet and increasing the width at the bends, at an estimated cost of $20,000.

(7) *Core Sound, N. C.*—Improve the Core Sound Waterway connecting Pamlico Sound and Beaufort Harbor, N. C. by providing channels 75 feet wide and 7 feet deep, located near the east and west ends of Harkers Island respectively, and a side channel 75 feet wide and 5 feet deep to and including a basin 150 feet long and 130 feet mean width at Davis, at a total estimated cost of $35,000.

(8) *Beaufort Harbor, N. C.*—Provide an extension of the existing basin in Beaufort Harbor eastward to the easterly side of March Street and increase the width of the entire basin to 600 feet and the depth to 12 feet, at an estimated cost of $54,000.

(9) *Banks Channel, N. C.*—Provide a channel 90 feet wide and 8 feet deep from the Inland Waterway via Motte and Banks channels to a point just within Masonboro Inlet at Wrightsville Beach, N. C., at an estimated cost of $9,000.

(10) *Myrtle Sound, N. C.*—Construct 6 mooring basins in Myrtle Sound at an estimated cost of $24,000.

(11) *Northeast (Cape Fear) River, N. C.*—Construct a channel 25 feet deep and 200 feet wide with increased width at the bends, from Hilton Bridge at Wilmington, for a distance of 1¼ miles upstream and a turning basin 600 feet wide at the upper end, at an estimated total cost of $73,000.

(12) *Cape Fear River, N. C.*—Improve the navigation facilities of Cape Fear River at and below Wilmington, N. C., by increasing the width of the southerly approach to the anchorage basin from 1,500 feet to 4,500 feet and the depth of the channel from Wilmington through the ocean bar to 32 feet with widths recommended in House Document No. 131, Seventy-sixth Congress, 1st session, at a total cost of $1,465,000.

(13) *Myrtle Beach, S. C.*—Construct an anchorage basin for yachts 125 feet wide, 335 feet long and 12 feet deep, connecting with the Intracoastal Waterway near the town of Myrtle Beach S. C., at an estimated cost of $11,000.

(14) *Congaree and Wateree Rivers, S. C.*—The construction of the Santee-Cooper Project will provide a waterway from Charleston Harbor to the head of the Santee River which is formed by the junction of the Congaree and Wateree Rivers. Construction of a navigable channel 8 feet deep in the Congaree River from its junction with the Wateree to Columbia, S. C., is proposed. Water to aid navigation during low flow periods would be obtained from a multiple purpose project in connection with power development on Broad River, a tributary of the Congaree. The cost of the navigation channel is estimated to be $300,000. Likewise it has been proposed that an 8-foot navigable channel be constructed on the Wateree River from its junction with the Congaree River to Camden, S. C. Water to aid navigation during low flow periods would be obtained from a multiple purpose project in connection with power development. The cost of the navigation channel is estimated to be $918,000.

(15) *Beresford Creek, S. C.*—Improve Beresford Creek by the construction of a channel 6 feet deep and 60 feet wide, with widening at the bends, via Clouter Creek from Cooper River to Mile 1.83 of Beresford Creek at an estimated cost of $21,000.

(16) *Abbapoola Creek, S. C.*—Construct a channel in Abbapoola Creek 60 feet wide and 4 feet deep from the mouth to a turning basin at Mile 5, at an estimated cost of $10,800.

(17) *Russell Creek, S. C.*—Construct a channel in Russell Creek 60 feet wide and 5 feet deep from the mouth to a highway crossing at Mile 4.2, at an estimated cost of $15,500.

(18) *Savannah River, S. C.-Ga.*—The existing project on Savannah River from Savannah Harbor to Augusta, Ga., provides for a 6-foot navigation channel, to be secured by dredging and by the construction of a lock and contraction works. It is recommended that the existing project be altered to include the regulation of stream flow as a part of a multiple purpose power-navigation project to be constructed at the Clark Hill site on the Savannah River above Augusta.

(19) *St. Johns River, Fla.*—Improve the harbor lines in St. Johns River at Jacksonville, Fla., as follows: (*a*) Widen Terminal Channel between its present westerly edge and the new pierhead-bulkhead line to a depth of 30 feet; (*b*) dredge to a depth of 28 feet the area between the foot of Laura Street and the Duval County Highway Bridge; (*c*) dredge a navigation and floodway channel 200 feet wide and 26 feet deep, along the south side of the Commodore Point Terminals, terminating in deep water at each end; and (*d*) dredge an approach and mooring basin 20 feet deep, 1,300 feet long at the 20-foot depth contour and 600 feet long at the pierhead line in front of the Naval Reserve

[3] A number of these projects have been modified substantially to meet war needs, and their cost estimates have been revised since this list was compiled, in June 1942.

Armory in South Jacksonville, at an estimated total cost of $725,000.

(20) *St. Johns River, Fla.*—The navigation channel in the St. Johns River from Palatka to Sanford, Florida, should be altered to provide for a channel 100 feet wide and 10 feet deep, with a side channel of like dimensions to Enterprise, Florida, at an estimated total cost of $290,000.

(21) *Sebastian Channel, Fla.*—Construct at Sebastian, Fla., an entrance channel 100 feet wide and 8 feet deep from the Intracoastal Waterway to and including a turning basin 600 feet long and 300 feet wide in front of the town at an estimated cost of $19,000.

(22) *Vero Beach Channel, Fla.*—Construct a channel from the Intracoastal Waterway to a point at or near Vero Beach, Fla., to provide a basin 8 feet deep extending from the Intracoastal Waterway to the easterly shore, approximately 1,140 feet wide at the Waterway and 280 feet wide at the shoreline, at an estimated cost of $7,300.

(23) *Cross Florida Waterway, Fla.*—The Cross Florida Waterway should be altered from Stuart, Florida, on the Atlantic Coast to Fort Myers, Fla., by deepening to 8 feet St. Lucie River and Canal, Lake Okeechobee and Caloosahatchie Canal and River, at an estimated cost of $208,000. (Note: This is not the proposed Cross Florida barge canal.)

(24) *New River, Fla.*—Dredge a channel 100 feet wide and 8 feet deep in New River at Fort Lauderdale, Fla., through the rock shoal between the Intracoastal Waterway and Tarpon Bend and remove sunken vessels and snags in New River and in its South Fork to the intersection of Dania Cut-off Canal, at an estimated cost of $60,000.

(25) *Little Manatee River, Fla.*—Improve Little Manatee River by providing a channel 100 feet wide and 6 feet deep from Tampa Bay to a point 2,700 feet above the railroad bridge at Ruskin and 75 feet wide and 6 feet deep in Marsh Branch to and including a turning basin at the highway bridge at Ruskin, at an estimated cost of $77,000.

(26) *Alafia River, Fla.*—Dredge a channel 150 feet wide and 25 feet deep from the ship channel in Hillsboro Bay to and including a turning basin in the Alafia River 600 feet wide and 1,025 feet long, at an estimated cost of $189,000.

(27) *Hillsboro River, Fla.*—Provide in Hillsboro River a channel 100 feet wide and 9 feet deep from the upper end of the Tampa Harbor project to a point 2,000 feet upstream from the Michigan Avenue Bridge, and remove snags, wrecks and piling on up to the Florida Avenue Bridge, at an estimated total cost of $60,000.

(28) *Anclote River, Fla.*—Extend and enlarge the existing channel of Anclote River upstream to form a turning basin, at an estimated cost of $10,000.

(29) *Pithlachascotee River, Fla.*—Construct a channel in Pithlachascotee River 100 feet wide and 6 feet deep from the Gulf of Mexico to and including a basin 200 feet in maximum width and 730 feet long at the down stream side of the highway bridge at Port Richey, Fla., at an estimated cost of $51,000.

(30) *St. Marks River, Fla.*—Straighten the existing navigation channel in the vicinity of Big Bayou at an estimated cost of $71,000.

(31) *St. Josephs Bay Canal, Fla.*—Provide for taking over the existing canal connecting the Intracoastal Waterway to St. Josephs Bay, Fla., and for enlarging the canal to a depth of 9 feet and a width of 100 feet, at an estimated first cost of $81,000.

(32) *Apalachicola River, Ga.-Fla.-Ala.*—For navigation in the Apalachicola River, the plan provides for a channel 9 feet deep and 100 feet wide to be obtained by open channel improvement and flow regulation. In the Chattahoochee River below Columbus, Ga., it provides for the same size channel through the construction of 6 locks and dams. In the Flint River, it provides for a channel 7 feet deep and 100 feet wide below Bainbridge, Ga., and a channel 5 feet deep and 100 feet wide from Bainbridge to Albany, Ga., to be obtained by open channel improvements and flow regulation. Flow regulation for the improvement of navigation and the development of power would be obtained by the construction of six storage-power dams, three on the Chattahoochee River and three on the Flint River. Power facilities would be installed at the six proposed storage-power dams and at five of the six locks and dams proposed for the canalization of the Chattahoochee River. The total estimated first cost is $67,044,000. As an initial step toward the accomplishment of this plan, it is recommended that the existing projects for Apalachicola River, Fla., Chattahoochee River, Ga. and Ala., and Flint River, Ga., be modified to provide for the construction of two of the locks and dams for the 9-foot project, one at Fort Benning and one at the Junction, supplemented by dredging and contraction works, to provide a navigable depth of 6 feet to Columbus, Ga., and to Bainbridge, Ga.; at an estimated cost for new work of $6,500,000.

(33) *Alabama and Coosa Rivers, Ala.-Ga.*—The plan consists of open river improvement on the lower 87 miles of the Alabama River, the construction of 5 locks and dams on the upper portion of the Alabama River, the construction of flights of locks at the 3 present power dams on the Coosa, the construction of 7 new locks and dams with heads ranging from 20 to 48 feet on that stream and the reconstruction and enlargement of the present lock and dam below Rome. The estimated cost without development of power is $34,239,000.

Another plan consists of combining the production of water power with the improvement for navigation. Power could be advantageously developed at 5 of the new dams on the Coosa River, provided that the river flow was regulated by reservoirs on the Etowah River and Big Canoe Creek, a tributary of the Coosa River. The total estimated cost of this plan is $57,707,000.

(34) *Tombigbee River, Ala.-Miss.*—Enlarge the spillway capacity of Dam No. 1, at an estimated cost of $115,000.

(35) *Warrior and Tombigbee Rivers, Ala.-Miss.*—Construct on Tombigbee River near Demopolis, Ala., a dam to replace dams Nos. 4, 5, 6, and 7, at an estimated cost of $6,750,000.

(36) *Tombigbee and Tennessee Rivers Waterway, Ala.-Miss.*—The proposed plan of improvement presupposes the construction of a recommended new lock and dam on the Tombigbee River just below Demopolis, Ala., with normal pool at elevation 64. From elevation 64 on the Tombigbee River to the normal pool on the Tennessee River above Pickwick Dam at elevation 413, the lift would be accomplished by 18 locks and 8 dams and a cut through the Yellow Creek divide having a maximum depth of 173 feet. The following channel dimensions would be provided:

9 feet by 170 feet in the river section.
12 feet by 170 feet in the canal section.
12 feet by 115 feet with passing places in the divide cut.

The estimated cost of the project is $66,000,000.

(37) *Dauphin Island Bay, Ala.*—Construct a channel 150 feet wide and 7 feet deep from Mobile Bay to an anchorage basin 600 feet long and 500 feet wide, located just north of Fort Gaines on Dauphin Island and a channel 40 feet wide and 4 feet deep from the anchorage basin to a 3-foot depth in Dauphin Island Bay, at an estimated total cost of $23,000.

(38) *Bayou La Batre, Ala.*—Enlarge the present channel in Bayou La Batre to a depth of 9 feet and a width of 100 feet from

Mississippi Sound to the highway bridge at the town of Bayou La Batre at an estimated cost of $27,500.

(39) *Old Fort Bayou, Miss.*—Provide an entrance channel 50 feet wide and 6 feet deep from Biloxi Harbor into Old Fort Bayou, at an estimated cost of $4,000.

(40) *Back Bay of Biloxi, Miss.*—Construct a channel 100 feet wide and 8 feet deep in Back Bay of Biloxi through Crane's Neck into Bayou Bernard, at an estimated cost of $6,000.

(41) *Bayou Galere, Miss.*—Improve Bayou Galere by constructing a channel 40 feet wide and 6 feet deep from its mouth to a turning basin 100 feet wide and 150 feet long near a boat yard 1 mile above the mouth, at an estimated cost of $6,000.

(42) *Pearl River, Miss.*—The general plan of improvement for the Pearl River includes a series of 10 low head dams, appropriate lockage facilities and channel improvements which would provide a 9-foot navigable waterway extending from the mouth of Pearl River to Jackson, Miss. The estimated first cost of the general plan for the improvements of navigation, control of floods and the development of power is $90,870,000. $33,620,000 of this construction cost is chargeable to navigation.

An authorized project on Pearl River, Mississippi and Louisiana, from the mouth to Bogalusa, La., is under construction. About two years will be required to complete the project with an additional expenditure of approximately $1,860,000.

(43) *Tennessee River, Tenn.-N. C.-Va.-Ala.-Ky.*—Congress has authorized the construction of lock tenders quarters at the various dams on this river. The estimated cost is $475,000.

(*Cumberland River, Tenn.-Ky.*—A study is now being made to ascertain the cost and advisability of deepening the navigation channel to 9 feet from the mouth to Nashville, Tenn.)

Flood Control

The control of floods in the Southeast has long been and promises to continue to be a liability accompanying the possession of rich water resources. Heavy rainfall and the frequent occurrence of storms of hurricane intensity result in unusually severe floods in most of the streams of the region. Especially is this the case in the mountain and plateau areas and along the Atlantic Coast. Fortunately, effective protection from flood damages can be secured in many instances at reasonable added cost in connection with the construction of facilities for river navigation and hydroelectric power. Consequently, this major water control problem is treated at this point in relation to those developmental problems. The control of floods is essential to prevent damages to highways, railways, urban areas, and agricultural lands, and, of course, to protect human life.

Flood conditions vary widely in different parts of the region. Many of the rivers on the Atlantic slope rise in the mountains where the valleys are narrow and the fall precipitous, flow through the Piedmont Plateau and out onto the Coastal Plain where the valley is wide and the gradient low. Flood waters rush down the mountains through the plateau and spread out over the flat Coastal Plain in a slow moving, shallow sheet of water that is damaging chiefly to agricultural land. In the mountains there are comparatively few cities located on the flood plains of the rivers and damages occur chiefly to highways, railways, and small areas of farm land.

There are more cities located upon the flood plains of the rivers on the western side of the mountains than on the Atlantic slope and, consequently there is much greater danger of the loss of lives and damage to homes, industries and business property.

The rivers which originate in the Coastal Plains or adjacent uplands do not, on the whole, cause serious flood damages at this time. Such overflows as occur are, in most localities, confined to low, undeveloped swamp areas. However, few river channels located in the Coastal Plain or alluvial formations have sufficient capacity to carry large flood flows. For this reason, as the region grows, as land is reclaimed for agricultural purposes and for urban expansion in those areas, flood problems will arise.

Other than the Mississippi, there are numerous rivers in the uplands of western Tennessee and Mississippi possessing similar characteristics. No cities and towns of importance are flooded. Most highways and railroads are built high enough to be naturally protected from overflow. Drainage canals have been constructed on some of these rivers and, in the upper reaches and on the tributaries, they are usually effective; on the main streams these improvements are generally inadequate to prevent floods although the floodwater is carried off more rapidly than would otherwise be the case. Such damages as occur are largely to crops on small areas of cultivated land along the margins of valleys.

Flood control problems on all of the major streams of the Southeast, along with those elsewhere in the Nation, have been carefully studied for many years by the United States Army Corps of Engineers and appropriate recommendations made to the Congress for remedial measures. These measures have ranged from general flood control, embracing the construction of large flood control dams with supplementary levees and diversion canals to levees, channel deepenings and other local facilities to protect small but valuable urban areas. Careful attempts to compare the costs of flood control measures with the value of benefits in terms of future damages prevented have indicated that the control of floods in many of the valleys of the Southeast is not economically feasible as such. In many other instances, however, these studies have indicated that with proportionately smaller additional construction cost for the provision of navigation or hydroelectric power production, or both, in flood control dams, the combined benefits outweigh the combined costs and render the undertakings economically feasible. Not all of these studies are of recent date; some are subject to revision

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in light of changed conditions. Further, studies conducted in connection with flood control problems on certain rivers indicated the economic infeasibility of specific projects even though power production and navigation facilities were included, though many of these studies are recognized as being based upon economic conditions of several years ago. More recent analyses of power potentialities and needs on these streams and in these areas by the Federal Power Commission, as will be indicated below, have developed information with which the earlier findings may be adjusted.

However, the construction of reservoirs or the improvement of navigation channels on streams where complete flood control would not be economically feasible in itself will tend to reduce the crest of floods and may provide substantial relief on some streams without any increase in cost. In other localities an additional expenditure for partial flood control may be justified when complete control is not feasible.

Flood Control on Specific Rivers

There follows here a description of the problems stemming from flood damages on the major rivers of the region and the remedies which appear to be indicated:

Tar, Neuse, and Cape Fear Rivers.—These rivers have similar flood characteristics, all having narrow valleys in the upland areas and broad gently sloping valleys in the coastal plain. There are no cities located wholly in the flood plain of any of these rivers above the fall line. However, some do extend down onto the flood plains, and damage occurs during major floods. The chief damages from floods on these rivers is to agricultural interests located on the coastal plain.

Investigations made some years ago indicated that general control of floods was not economically justifiable at that time on either the Tar or Cape Fear River, even though combined with the development of hydroelectric power. On the Neuse River, reservoirs could be constructed that would reduce to harmless proportions floods that occur once in 10 years or oftener. The annual carrying cost would be somewhat less than the average annual flood damage, but the annual cost would be $3 per acre or more on all the land benefited and over $10 per acre on the cultivated land. This appears to be too heavy a tax burden for the landowners to pay under existing conditions. The only urban area on these three rivers where local flood control appears to be economically feasible is near Goldsboro, N. C., where a cut-off on the Neuse River would lower flood stages and relieve a low area in the city from backwater, at an expenditure of about $50,000.

Pee Dee and Santee Rivers.—There are numerous sites for power dams on the headwaters of both of these South Carolina streams. If power is fully developed, the necessary dams will create a series of reservoirs that will utilize most of the river valleys above the fall line, and prevent cultivation of the land. However, much of this land cannot be successfully cultivated under present conditions, and such as is cultivated cannot be economically protected from floods. It now appears that it would be more useful in the local economy if used for power purposes than for agriculture, although further studies are needed to verify this.

About 616,000 acres of land along the Pee Dee in the coastal plain are subject to overflow during large floods. Less than 10 percent of this area is cultivated. Damages due to floods are limited largely to crops on cultivated areas and to highways and railroads. Preliminary estimates indicate that only about 64,000 acres would be protected from floods by the construction of multiple-use dams for both power and flood control and that the cost that should be allocated to flood control, would amount to $34.40 per acre of land protected. Estimates on the protection from floods of 115,000 acres along Lynches, Lumber, and Little Pee Dee rivers indicate a cost of $37 per acre. These costs are far in excess of the flood benefits and the projects cannot be economically justified on that basis.[4]

There are about 348,000 acres of land along the Santee River in the coastal plain that are overflowed during large floods. Most of this land is timbered and direct flood damages are small. The Santee-Cooper Hydroelectric Project now under construction provides for a diversion dam 87 miles above the mouth of the Santee River. Approximately 100,000 acres of land above the dam will be submerged. Below the diversion dam the flood hazard is largely if not completely removed.

Edisto River.—The Edisto River in South Carolina lies almost entirely within the coastal plain. Some of the lands along the river are subject to floods. Recent studies by the United States Corps of Engineers state that improvement by the construction of dams for flood control with or without power development is not economically justified. However, these studies recommended that the channel be cleared on the lower 18 miles of South Fork, the lower 10 miles of North Fork, and the upper 15 miles of Edisto River. It is estimated that this work will double the capacity of the river channels and give considerable relief.

Savannah and Altamaha Rivers.—The valleys on these river systems above Augusta, Milledgeville, and Macon, Georgia, are narrow and rugged. They con-

[4] H. Doc. 68, 73d Cong., 1st sess.

tain no cities or towns of importance and damages from floods are not serious.

Below Augusta the lowlands along the Savannah River are subject to floods. However, only a small percentage are in cultivation and, thus, flood damages are small. The cost of protecting these lands, either by means of levees or reservoirs, even when combined with power, was indicated as economically unjustified in early studies by the United States Corps of Army Engineers. Similarly, the Altamaha floods about 385,000 acres of land in the Coastal Plain during large floods, and the cost of general flood control with or without power development was found to exceed the benefits. However, there are some areas where flood control is economically feasible. Butler and Champney Islands at the mouth of the river are now protected by levees against all but the largest floods. Investigations indicate that a considerable area of overflowed land near the mouth of the river can be protected at a cost of about $2,120,000, although consideration must be made of agricultural potentialities to determine whether the expenditure is justified.

The City of Macon lies largely above flood level, but a number of industrial plants, brick and tile factories and a public park are flooded during high stages in the Ocmulgee River. This area can be protected at a cost of about $340,000 which appears to be economically justifiable.

Satilla, Suwannee, Kissimmee, Escambia and Other Rivers.—There are a score or more of rivers including those listed above located in the Gulf Coastal Plain which have similar characteristics. The floodwaters in these sluggish streams spread slowly into the adjacent swamp lands. Usually only the higher lying lands are cultivated so that damages do not reach large amounts. A few municipalities are affected but damages are confined largely to agriculture. Flood control measures are desirable at this time on several of these streams.

Plans have been made for protecting against floods at Brewton and Flomaton, Ala., on the Escambia River system, and at Careyville, Fla., on the Choctawhatchee River, by the construction of levees.

Investigations are under way to determine the feasibility and cost of flood protection on the following Florida rivers: Kissimmee, Estero, Imperial, Corkscrew, Gordon, Hillsboro, Withlacoochee, Suwannee and Peace. An investigation for flood control is also needed on the Satilla river in Georgia.

Caloosahatchee River and Lake Okeechobee, Fla.—Army Engineers report that the hurricane of 1928, with a maximum wind velocity of 135 to 150 miles per hour, caused a hurricane tide of 13.2 feet on Lake Okeechobee, Fla. This hurricane caused such great loss of life and property damage that the Federal Government undertook the present Lake Okeechobee flood control project. Past records show that hurricanes with much greater wind velocity than that of 1928 have occurred, notably that of the Florida Keys in 1935, which had an estimated wind velocity of approximately 200 miles per hour and a maximum hurricane tide of 16 to 18 feet. Records also show that, in general, past hurricanes striking the Atlantic or Gulf coast are reduced very little in intensity by the time they reach Lake Okeechobee. Lake Okeechobee is therefore subject to hurricanes of a similar intensity to that of the hurricane which occurred on the Keys in 1935, and it may have to withstand a hurricane tide of 16 to 18 feet. It is recommended by the United States Engineering Department that at this time the existing project be modified to provide for raising and enlarging sections of the Lake Okeechobee levees in Division No. 9 at an estimated cost of $3,960,000.

Apalachicola River.—The headwaters of the Apalachicola River lie in the mountains of North Georgia at an elevation of about 4,000 feet. About one-half of the drainage area lies in the Georgia mountains and Piedmont Plateau, and the other half in the Georgia and Florida Coastal Plain.

The river valleys above the fall line are narrow and only partly in cultivation. A small part of a few cities and towns extend down into the flood plain. General flood control is not economically justified. However, a series of power dams might be operated so as to reduce flood stages and local protection can be secured for cities and towns by the construction of levees and channel improvements. Studies are now being made on this river system by the United States Corps of Engineers.

Mobile River System.—The Alabama-Coosa branch of the Mobile River rises in the southern terminus of the Blue Ridge mountains in Southeastern Tennessee. Above Wetumpka, Ala., the terrain is rugged and the valleys quite narrow. Below Wetumpka the valley is wider and largely in cultivation.

Large floods are infrequent, but extremely severe. Highest stages affect parts of the cities of Montgomery, Selma, Prattville, and Gadsden, Ala., and Rome and Canton, Ga., and also much agricultural land. Reservoir storage in the valley is small and general flood control for the entire valley cannot be economically justified either by reservoirs or other means.

The cost of local protection can be justified in some localities. A system of levees and concrete walls has recently been constructed at Rome, Ga., and the construction of a multiple use reservoir at Allatoona, Ga., on the Etowah River for power and flood control has been projected. This reservoir site is above Rome and

will give added protection from floods; the estimated first cost of the project is $9,590,000.

Prattville on Autauga Creek, a tributary of the Alabama River, can be protected by a system of levees, flood walls, and channel improvement at a cost of $537,900.

The Tombigbee-Warrior branch of the Mobile River lies in northwestern Alabama and northeastern Mississippi. Floods occur frequently in the winter and spring, but destructive floods occur only about one year out of four in the summertime.

Above Tuscaloosa, Ala., the valley of the Warrior River is narrow and the area flooded small; hence flood damages are not large in the aggregate. About 188,000 acres of land on the Warrior, most of which lies below Tuscaloosa, are subjected to floods. About one-half of this land is in cultivation.

Neither general flood control for the Warrior Valley as a whole, nor local protection for the agricultural lands, appear to be economically justifiable.

On the Tombigbee River above Columbus, Miss., extensive channel work has reclaimed a large area of land. Large floods still overflow the valley, but are carried off quickly and the damages are not excessive. From the vicinity of Demopolis, Ala., down to Lock No. 1, overflows are rather frequent, and an area of about 106,000 acres of cultivated land is frequently flooded. It is estimated that the first cost of levee protection for this area would be $3,000,000, or over $28 per acre. Moreover, studies of the United States Corps of Engineers have indicated that general flood protection for the Tombigbee River valley by reservoir control cannot be economically justified even in connection with the production of hydroelectric power.

Pascagoula, Pearl, and Big Black Rivers.—The greater part of the drainage areas of these rivers lies in the rolling hills of central Mississippi. The valleys are relatively narrow, are subjected to frequent flooding, and are largely covered with timber. The cleared areas are located along the sides of the valleys and on the headwaters and tributaries. There are few cities or towns affected by floods. The chief benefits from flood control would be to agricultural land.

Jackson, Miss., is affected by floodwater from the Pearl River which backs up Town Creek and floods some of the low-lying parts of the city and covers a few of the main thoroughfares. Town Creek, which carries most of the storm and sanitary sewage from the city, overflows during large floods in Pearl River, and the disposal of sewage is seriously retarded. Studies are now under way to determine the feasibility of flood control on Pearl River and for the protection of the city of Jackson. Flood-control studies are also under way on Chickasawhay and Leaf Rivers and Chunkey and Bowie Creeks, all tributaries of Pascagoula River.

Big Black River has recently been improved by channel clearing and cut-offs. Complete flood control is not deemed economically justified along the main stream at the present time.

Mississippi River.—The construction of the works for controlling floods on the main stem of the Mississippi River, insofar as it affects the States of Mississippi and Tennessee in this region, has been largely completed. All that remains to be done is to raise the levee along the east bank of the Mississippi River from the Coahoma-Bolivar County line south to the mouth of the Yazoo River to an elevation 3 feet above the project flood, and to complete the flood-control works at Memphis, Tenn., to protect some of the low-lying areas of the city from backwater. It is anticipated that 3 or 4 years will be required to complete this project at a cost of about $8,500,000.

Yazoo River System.—The headwaters of the Yazoo River lie in the rolling hill lands of north central Mississippi. Four principal rivers, the Coldwater, Tallahatchie, Yocona, and Yalobusha, discharge the hill runoff onto the flat alluvial plain along the Mississippi River, known as the Yazoo Delta and containing about 6,600 square miles of rich farming land. A flood control plan for the main streams has been authorized by Congress. It consists of reservoirs on the rivers in the hills and cut-offs, and levees on the main river in the delta.

The Sardis Dam on the Tallahatchie River has been completed. The Arkabutla Dam on the Coldwater River was scheduled for completion early in 1943. Cost estimates were over $7,500,000.

Construction of neither the Enid Reservoir on the Yocona River nor the New Grenada Reservoir on the Yalobusha River has been started. The former will cost about $8,000,000, and the latter $24,000,000.

Channel work in the Delta for protection from headwater is under way and will be completed down to Tallahatchie River during 1943. The cost to complete the work to this point will be about $2,880,000.

The remaining improvements on the Tallahatchie and Yazoo for protection against headwater will be constructed concurrently with the Enid and New Grenada Reservoirs.

In addition to protection of the Yazoo Delta lands from headwater, protection of approximately 1,000,000 acres of these lands in the lower end of the Delta against backwater from the Mississippi River has been authorized by Congress. This will be accomplished by the construction of a levee and pumping plant at an estimated cost of $11,982,000.

Wolfe, Hatchie, Forked Deer, and Obion Rivers.—These rivers are located in the rolling hill lands of west Tennessee. The valleys are narrow and largely in timber. There are no cities or towns on the flood plains and the only flood damages of importance are confined to farm crops located along the margins of the valleys where farms have been extended onto the bottom lands below the flood line.

Elimination of floods from the valleys along the main stems of these rivers is not economically feasible. Land along the headwaters and smaller tributaries can be advantageously reclaimed.

Tennessee River System.—The headwaters of the Tennessee River lie in the mountains in Virginia, North Carolina, and Tennessee. Heavy rainstorms sweeping over these mountains cause large floods in all the streams. When the flood-control and power reservoirs now under construction or contemplated on the main stem of the river below Knoxville are completed, most of the valley will be occupied by reservoir pools, and flood problems will be largely removed.

However, protection works are necessary at Chattanooga. With the completion of the TVA dams above Chattanooga, the city will need further protection and a levee system must be constructed. This project has been authorized by Congress at a cost of $17,000,000.

To reduce flood heights at Asheville and Marshall, N. C., and other points along the French Broad River, detention reservoirs could be built on Swannanoa River, Cane Creek, Hominy Creek, Mills River, Davidson River, and French Broad River at Rosman, and to protect Canton, N. C., a dam should be built on the Pigeon River just above the city. The cost of detention dams for flood control only would approximate $6,500,000, but would be less than the damages from a single maximum flood. A multiple-purpose project for power and flood control is being speedily constructed on the French Broad River at the Douglas site near Dandridge at a cost of approximately $34,000,000 under the defense program.

Kingsport, Tenn., on the Holston River, and Elizabethton on the Watauga River need protection from floods. It appears that relief could be provided by the construction of multiple-purpose projects for power and flood control, probably at Cardens Bluff on Watauga River, and at Riddles Creek site on the Holston River. Other localities that need flood protection are Bristol, Va.-Tenn., from floods in Beaver Creek; Johnson City, Tenn., from floods in Brush Creek; Knoxville, Tenn. from floods in First Creek; and Bryson City, Sylva, Dillsboro, and other communities in North Carolina from floods in the Tuckasegee River. Kingsport, Tenn., provides an example of the costliness of building urban centers on the flood plains of streams susceptible to serious and frequent overflow. In this instance, valuable residential and industrial property has been erected close to the river in an area which is subject to medium and large floods. During the flood of August 1940, which was 6 feet or more lower than known previous floods in the area, the residential section, located on the island section of the area, was seriously flooded, necessitating the evacuation of dwellings. A flood of a slightly higher crest would have done serious damage to the industrial properties which were not appreciably affected. Elizabethton, on the Watauga River nearby, lies partly on the flood plain; highly developed residential areas were overflowed during the 1940 flood, damages to property in the city exceeding an estimated $300,000. Again, part of the city of Asheville is built on the flood plain of the French Broad River. It is estimated that a flood of the magnitude of that of 1916 would result in damages of $3,000,000 in Asheville.

Cumberland River.—Owing to the heavy rainfall and steep gradient on the upper reaches of this river, the valley is subjected to large floods that rise quickly. The cities of Nashville, Clarksville, Tenn., and Middlesboro, Barbourville, and Pineville, Ky., have serious flood-protection problems. A large part of the valley is in cultivation and severe crop damage is suffered frequently.

General flood control for the Cumberland River Valley by the construction of reservoirs or other means cannot be economically justified. However, the construction of six dams on the Cumberland and its tributaries has been authorized by Congress for the purpose of reducing floods on the Mississippi River. These dams are located on the following streams:

Wolf Creek Dam, on Cumberland River.
Dale Hollow Dam, on Obey River.
Center Hill Dam, on Caney Fork.
Stewarts Ferry Dam, on Stones River.
Three Islands Dam, on Harpeth River.
Rossview Dam, on Red River.

Should these dams be constructed for flood control alone, the result would be beneficial to the lower Mississippi River and also floods in the Cumberland Valley would be reduced to stages causing little or no damage.

The Wolf Creek Dam is now being constructed for flood control, with provision for the development of power. It will be completed in 1944 at an estimated cost of $35,000,000. With an additional expenditure of about $25,000,000 for the production of power, it is estimated that 250,000 kilowatts can be produced with an average annual output of 780,000,000 kilowatt-hours.

Studies are now being made to determine the effects on floods should all these dams be constructed for both power and flood control.

Hydroelectric Power

While the streams of the Southeast present the region with serious and costly flood problems, they return far greater wealth-producing values in electric energy and account for an important segment of its industrial and business development. Moreover, the provision of hydroelectric power-producing facilities in connection with navigation and flood-control projects has, especially, in recent years, made low-cost power available to thousands of farms and has facilitated thereby a more diversified type of farming, and a richer and more attractive life for rural families.

Installed Hydroelectric Capacity by States

The total generating capacity of water-power plants of 100 or more horsepower installed in the region as of the close of 1941 was 4,295,266 horsepower.[5] An inventory of this development by States arranged according to the volume of production follows:[6]

Alabama.—Hydroelectric power dams have been constructed at 13 points along the rivers of Alabama. Private power companies operate generating facilities at 10 of these points on the Coosa, Tallapoosa, Pea, and Conecuh Rivers. The TVA operates the remaining 3, which are located on the Tennessee River—Guntersville, Wheeler, and Wilson Dams. The installed capacity of the developments in Alabama is 1,141,968 horsepower, or 26.6 percent of the region's total.

North Carolina.—Hydroelectric power dams in North Carolina number 64; the installed capacity of 1,057,489 horsepower accounts for 24.6 percent of the total for the Southeastern region. The developments are constructed along 53 various rivers and creeks. Private power companies operate all of the developments with the exception of the TVA's Hiwassee Dam and municipally owned plants at Asheville, Durham, Highlands, North Wilkesboro, and Wilson. A very large number of North Carolina power developments are operated by textile-manufacturing plants.

South Carolina.—The installed capacity of hydroelectric plants in South Carolina totals 856,311 horsepower, 19.9 percent of that for the region as a whole. Fifty-seven generating plants are involved and all but two, municipal plants at Spartanburg and Columbia operated in connection with city waterworks departments, are privately owned. Twenty rivers and creeks have provided the sites for these developments. As in North Carolina, a substantial number of the operations are those of manufacturing plants, principally textile mills.[7]

Tennessee.—An installed hydroelectric power capacity of 626,572 horsepower in Tennessee represents 14.6 percent of the total for the region. Of the 29 plants making up this capacity, 12 are privately operated, 2 are operated by municipalities (Cookeville and Lawrenceburg), and 15 by the TVA, 21 rivers and creeks providing sites.

Georgia.—Forty-one hydroelectric developments have been installed in the State of Georgia with a combined capacity of 591,026 horsepower. They are located on the following rivers: Middle Oconee, Yellow, Chattahoochee, Flint, Savannah, Tallulah, Towaliga, Ocmulgee, Tugalo, Little Ogeechee, Soque, Toccoa, Etowah, Chattooga, and on Beaverdam, Spring, Pataula, Whitewater, Vickery, and Toccoa Creeks. Except for one TVA dam and the Elberton municipal plant, the developments are those of various private power companies. The installed capacity constitutes 13.8 percent of the total for the region.

Florida.—On the Withlacoochee, Ochlockonee, Ocklawaha Rivers and on Blue Springs Creek in Florida, four hydroelectric developments have been constructed. The terrain of the State is, of course, not such as to endow it with rich hydroelectric resources. The four developments, operated by private power companies, have a total installed capacity of 21,900 horsepower, only one-half of 1 percent of the regional total.

Mississippi.—While none of the potential power sites of Mississippi have as yet been developed, a substantial area of the northern part of the State is within the transmission radius of the TVA dams and some of it is in close proximity to those developments.

Eleven other hydroelectric power plants in the Southeast which are now under construction are listed below.

Name of project	Stream	State	Estimated ultimate capacity (horsepower)	Estimated ultimate cost	Estimated completion date
Santee-Cooper	Santee and Cooper	S. C.	213,300	$48,000,000	1941
St. Lucie	St. Lucie	Fla.	2,000		
Apalachia	Hiwassee River	N. C.	100,500	19,600,000	1943
Chatuge	do	N. C.	20,000	6,250,000	1942
Cherokee	Holston River	Tenn.	160,800	31,500,000	1942
Fort Loudoun	Tennessee River	Tenn.	171,500	29,500,000	1943
Kentucky	do	Ky.	214,400	105,000,000	1944
Nottely	Nottely River	Ga.	20,000	4,700,000	1942
Ocoee No. 3	Ocoee River	Tenn.	36,200	6,250,000	1943
Watts Bar	Tennessee River	Tenn.	201,000	35,900,000	1942
Wolf Creek	Cumberland	Ky.	335,100	60,000,000	1943

[5] The information on installed hydroelectric capacity on this and succeeding pages is based on S. Doc. 125, 76th Cong., 1st sess.; additional capacity placed in operation during 1941 is included. Installed capacity in terms of kilowatts can be obtained by multiplying data in horsepower by 0.746.

[6] See Fig. 23. For detailed tabulations by States, see Appendix, table 1X.

[7] In the winter of 1942, since these compilations were made, the South Carolina Public Service Authority's Santee-Cooper Dam initiated operations with an estimated installed capacity of 213,300 horsepower.

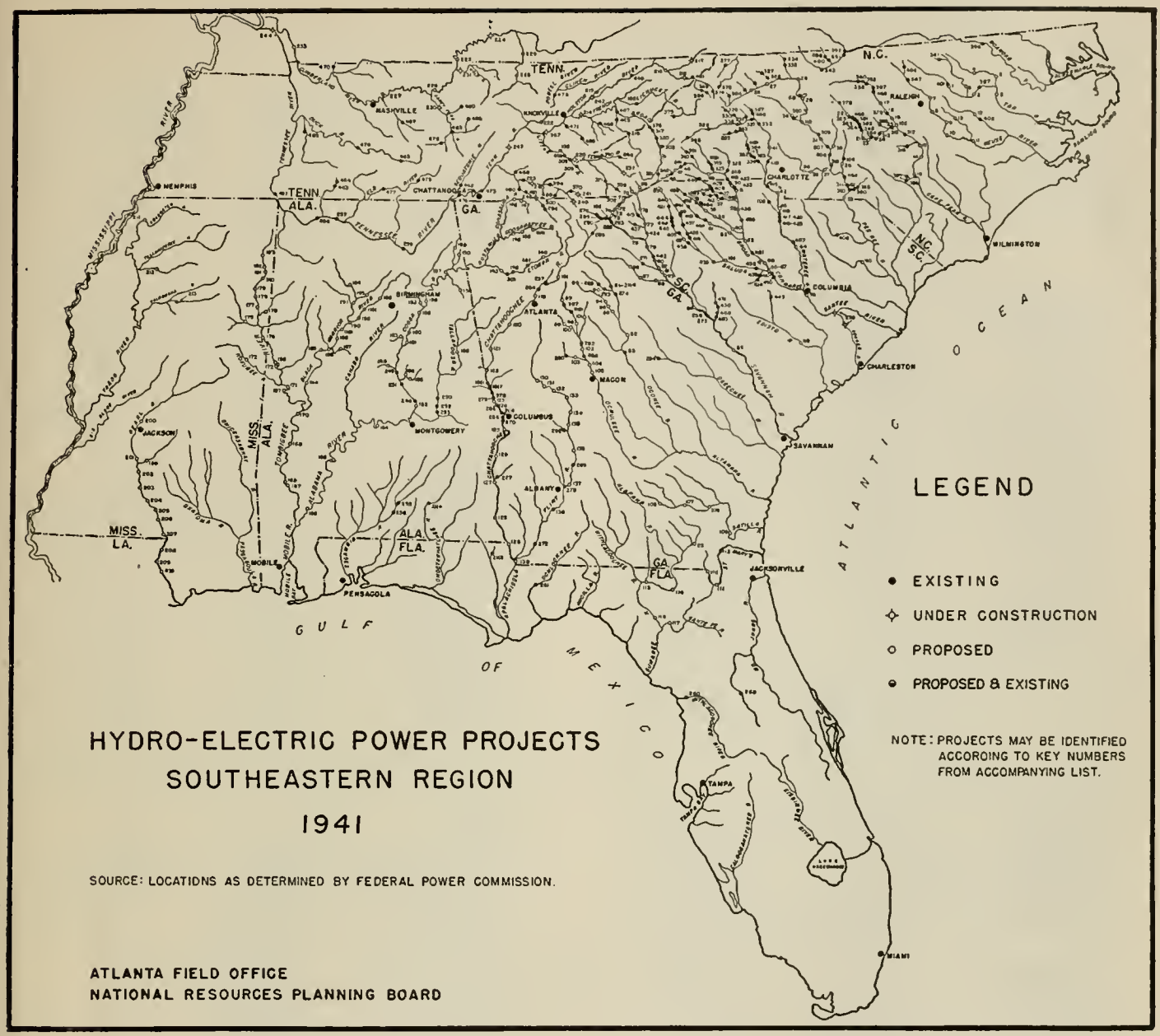

Figure 23

PROPOSED HYDROELECTRIC POWER DEVELOPMENTS, SOUTHEASTERN STATES

TAR RIVER BASIN

No.	Project name	Stream	State
1	Webbs Bridge	Tar River	N. C.
2	Sharpsburg	do	N. C.
3	Tarboro	do	N. C.
4	Fishing Creek	Fishing Creek	N. C.
5	Melton Bridge	do	N. C.
6	Sapony	Sapony Creek	N. C.

NEUSE RIVER BASIN

No.	Project name	Stream	State
7	Falls	Neuse River	N. C.
8	Milburnie	do	N. C.
9	Wilson Mills	do	N. C.
10	Smithfield	do	N. C.
11	Goldsboro	do	N. C.
12	Wiggins Mill	Contentnea Creek	N. C.
13	Bakers Mill	Little River	N. C.

CAPE FEAR BASIN

No.	Project name	Stream	State
14	Smiley Falls	Cape Fear River	N. C.
15	Lillington	do	N. C.
16	Fayetteville	do	N. C.
17	Mandale	Haw River	N. C.
18	Bynum	do	N. C.
19	Moores Mill	do	N. C.
20	New Hope	do	N. C.
21	Howards Mill	Deep River	N. C.
22	Randleman	do	N. C.
23	Johnson Ford	do	N. C.
24	Glendon	do	N. C.
25	Lockville	do	N. C.

YADKIN-PEEDEE BASIN

No.	Project name	Stream	State
26	Wilkesboro	Yadkin River	N. C.
27	Elkin	do	N. C.
28	Donnaha	do	N. C.
29	High Point	do	N. C.

YADKIN-PEEDEE BASIN—Continued

No.	Project name	Stream	State
30	Junction	Yadkin River	N. C.
31	Tuckertown	do	N. C.
32	Greater Blewett	Peedee River	N. C.
33	Morven	do	N. C.
34	Cooleemee	South Yadkin River	N. C.
35	Loves Ford	Rocky River	N. C.
36	Nances Ford	do	N. C.
37	Crumps Ford	do	N. C.
38	Uharie	Uharie River	N. C.
39	Martin's Bridge	Little River	N. C.
40	Lynches	Lynches River	S. C.

SANTEE BASIN

41	Cowans Ford	Catawba River	N. C.
42	Sugar Creek	do	N. C.
43	Courtney Island	do	N. C.
44	Camden	Wateree River	S. C.
45	Lincolnton	South Fork River	N. C.
46	Storage	Green River	N. C.
47	Saluda	do	N. C.
48	Foster	do	N. C.
49	Clinchfield	Broad River	N. C.
50	Greater Gaston Shoals	do	S. C.
51	Cherokee Falls	do	S. C.
52	Greater Lockhart	do	S. C.
53	Blairs	do	S. C.
54	Frost Shoals	Congaree River	S. C.
55	Columbia	do	S. C.
56	Kingsville	do	S. C.
57	Trough	Pacolet River	S. C.
58	Nesbit	Tiger River	S. C.
59	Burnt Factory	do	S. C.
60	Tiger	do	S. C.
61	Sedalia	Enoree River	S. C.
62	Enoree	do	S. C.
63	Venus	Saluda River	S. C.
64	The Forks	do	S. C.
65	Upper Ware Shoals	do	S. C.
66	Buzzards No. 2	do	S. C.
[1] 67	Columbia	do	S. C.

EDISTO RIVER BASIN

68	Edisto	Edisto River	S. C.

SAVANNAH RIVER BASIN

69	Toxa-Rosman	Toxaway River	N. C.-S. C.
70	Oakland	Horsepasture River	N. C.-S. C.
71	War Woman	Chatooga River	Ga.-S. C.
72	Sand Bottom	do	Ga.-S. C.
73	Rogues Ford	do	Ga.-S. C.
74	Long Creek	do	Ga.-S. C.
75	Camp Creek	do	Ga.-S. C.
76	Old Pickens	Keowee-Little Rivers	S. C.
77	Clemson	Keowee River	S. C.
78	Sugar Creek	Tugaloo River	Ga.-S. C.
79	Hartwell	Tugaloo-Savannah Rivers.	Ga.-S. C.
80	Middleton Shoals	Savannah River	Ga.-S. C.
81	Calhoun Falls	do	Ga.-S. C.
82	Carters Island	do	Ga.-S. C.
83	Trotters Shoals	do	Ga.-S. C.
84	Clark Hill	do	Ga.-S. C.
85	Brighams Landing	Savannah River	Ga.-S. C.
86	Bowman	Broad River	Ga.
87	Carlton	do	Ga.
88	Anthony Shoals	do	Ga.

ALTAMAHA RIVER BASIN

89	Tallassee	Oconee River	Ga.
• 90	Mitchell Bridge	do	Ga.
91	Athens	do	Ga.
92	Laurens Shoals	do	Ga.
93	Furman Shoals	do	Ga.
94	High Shoals	Apalachee River	Ga.
95	Price Mill	do	Ga.
96	Coppin Shoals	do	Ga.
97	Anneston	Yellow River	Ga.
98	Lee Shoals	do	Ga.
99	Peachstone	South River	Ga.
100	McKay Creek	do	Ga.
101	Factory Shoals	Alcovy River	Ga.
102	Lamar Ferry	Ocmulgee River	Ga.
103	Jackson Bridge	Towaliga River	Ga.
104	Dames Ferry	Ocmulgee River	Ga.
105	Taylor Shoals	do	Ga.

[1] See note 2 on p. 109.
• See also No. 283. No. 90 is a proposed new development, whose dam site is near the upstream end of the present development (No. 283).

SATILLA RIVER BASIN

No.	Project name	Stream	State
106	Pearson	Satilla River	Ga.
107	Waycross	do	Ga.
108	Hurricane Creek	do	Ga.
109	Burnt Fort	do	Ga.

ST. MARYS RIVER BASIN

110	Moniac	St. Marys River	Ga.-Fla.
111	MacClenny	do	Ga.-Fla.
112	Traders Hill	do	Ga.-Fla

SUWANNEE RIVER BASIN

113	Okefenokee	Suwannee River	Ga.
114	Site No. 4	do	Fla.
115	Site No. 3	do	Fla.
116	Site No. 2	do	Fla.
117	Santa Fe	Santa Fe River	Fla.

APALACHICOLA BASIN

118	Roswell	Chattahoochee River	Ga.
119	Vinings	do	Ga.
120	Cedar Creek	do	Ga.
121	Franklin	do	Ga.
122	Lanier	do	Ala.-Ga.
123	Clapps Factory	do	Ala.-Ga.
124	North Highlands	do	Ala.-Ga.
125	Fort Benning	do	Ala.-Ga.
126	Florence	do	Ala.-Ga.
127	Fort Gaines	do	Ala.-Ga.
128	Columbia	do	Ala.-Ga.
129	Paramore Ldg	do	Ala.-Ga.
130	Woodbury #2	Flint River	Ga.
131	Wynns Bridge	do	Ga.
132	Potato Creek	do	Ga.
133	Auchumpkee Creek	do	Ga.
134	Nokomis	do	Ga.
135	Montezuma	do	Ga.
136	Vienna	do	Ga.
137	Upper Albany	do	Ga.
138	Newton	Apalachicola River	Ga.
139	River Junction	do	Fla.

MOBILE RIVER BASIN, ALABAMA-COOSA BRANCH

140	Gilmer	Etowah River	Ga.
141	Canton	do	Ga.
142	Allatoona	do	Ga.
143	Kingston	do	Ga.
144	Cartecay	Coosawattee River	Ga.
145	Upper Coosawattee	do	Ga.
146	Lower Coosawattee	do	Ga.
147	Jacks River	Jacks River	Tenn.
148	Alaculsey Valley	Conasauga River	Tenn.
149	Little River	Little River	Ala.
150	Mills Creek	Mills Creek	Ala.
151	Terrapin Creek	Terrapin Creek	Ala.
152	Big Canoe Creek	Big Canoe Creek	Ala.
153	Yellow Leaf Creek	Yellow Leaf Creek	Ala.
154	Waxahatchee Creek	Waxahatchee Creek	Ala.
155	Hatchet Creek	Hatchet Creek	Ala.
156	Weogufka Creek	Weogufka	Ala.
157	Leesburg Dam	Coosa River	Ala.
[2] 158	Pat Lay Dam	do	Ala.
159	Emory Bend Dam	do	Ala.
160	Howell Mill Shoals Dam	do	Ala.
161	Fort William Shoals Dam	do	Ala.
162	Wetumpka Dam	Coosa River	Ala.
163	Crooked Creek	Tallapoosa River	Ala.
164	Jones Bluff	Alabama River	Ala.
165	Yellow Bluff	do	Ala.
166	Choctaw Bluff	do	Ala.

MOBILE RIVER BASIN, TOMBIGBEE BRANCH

167	Lock and Dam No. 1 (a)	Tombigbee River	Ala.
168	Lock and Dam No. 1	do	Ala.
169	Lock and Dam No. 2	do	Ala.
170	Demopolis (L. & D. No. 4)	do	Ala.
[3] 171	Lock and Dam A	do	Ala.
172	Storage Dam No. 4	Noxubee River	Miss.
[4] 173	Lock and Dam B	Tombigbee River	Ala.
174	Lock and Dam C	do	Miss.
175	Storage Dam No. 5	Tibbee River	Miss.

[2] See also No. 249, already developed. No. 158 is an altogether different potential development about 100 miles upstream of No. 249.
[3] Nos. 171 and 197 are essentially alternates, under alternate plans for improvement.
[4] Nos. 173 and 198 are essentially alternates, under alternate plans for improvement.

MOBILE RIVER BASIN, TOMBIGBEE BRANCH—Continued

No.	Project name	Stream	State
176	Storage Dam No. 6	Buttahatchie River	Miss.
177	Lock and Dam D	Tombigbee River	Miss.
178	Lock and Dam E	Tombigbee River	Miss.
179	Lock and Dam F	do	Miss.
180	Lock and Dam G	East Fork Tombigbee	Miss.
181	Lock and Dam H	do	Miss.
182	Lock and Dam I	do	Miss.
183	Lock and Dam J	do	Miss.

MOBILE RIVER BASIN, WARRIOR AND BLACK WARRIOR RIVER BRANCH

184	Lock and Dam No. 7	Warrior River	Ala.
185	Lock and Dam No. 10	Black Warrior River	Ala.
186	Lock and Dam No. 13	do	Ala.
187	Lock and Dam No. 14	do	Ala.
188	Lock and Dam No. 15	do	Ala.
189	Lock and Dam No. 16	do	Ala.
190	Lock and Dam No. 17	do	Ala.
191	Lock and Dam No. 18	Mulberry Fork River	Ala.
192	Lock and Dam No. A	Locust Fork	Ala.
193	Lock and Dam No. B	do	Ala.
194	Storage Dam No. 1	Sipsey Fork Creek	Ala.
195	Storage Dam No. 2	Mulberry Fork River	Ala.
196	Storage Dam No. 3	Locust Fork River	Ala.

TOMBIGBEE-TENNESSEE RIVER WATERWAY

197	Epes Lock and Dam	Tombigbee River	Ala.
198	Cochrane Lock and Dam	do	Ala.

PEARL RIVER SYSTEM

199	Strong River	Strong River	Miss.
200	Jackson	Pearl River	Miss.
201	Dam No. 10	do	Miss.
202	Dam No. 9	do	Miss.
203	Dam No. 8	do	Miss.
204	Dam No. 7	do	Miss.
205	Dam No. 6	do	Miss.
206	Dam No. 5	do	Miss.
207	Dam No. 4	do	Miss.

PEARL RIVER SYSTEM—Continued

208	Dam No. 3	Pearl Rive	Miss.
209	Dam No. 2	do	Miss.
210	Dam No. 1	do	Miss.

YAZOO RIVER SYSTEM

211	Arkabuta	Coldwater River	Miss.
212	Enid	Yocona River	Miss.
213	New Grenada	Yalobusha River	Miss.

TENNESSEE RIVER BASIN

214	Douglas	French Broad River	Tenn.
215	Forgey Creek	Holston River	Tenn.
216	Backmans Ford	do	Tenn.
[5] 217	Riddle Creek	South Fork of Holston River.	Tenn.
218	Cardens Bluff	Watauga River	Tenn.
219	Buffalo Ford	Holston River	Tenn.
220	Fontana	Little Tennessee	N. C.
221	Chihowee	do	Tenn.
222	Melton Hill	Clinch River	Tenn.
223	Austral	Hiwassee River	Tenn.
236	Fines Creek	Big Pigeon River	N. C.

CUMBERLAND RIVER BASIN

[6] 224	Wolf Creek	Cumberland River	Ky.
225	Celina	do	Tenn.
226	Carthage	do	Tenn.
227	Old Hickory	do	Tenn.
228	Helenwood	do	Tenn.
229	Devils Jump	do	Tenn.
230	Center Hill	do	Tenn.
231	Dale Hollow	do	Tenn.
232	Cumberland Falls	do	Ky.
233	Canton	do	Ky.
234	Laurel	Laurel River	Ky.
235	Rockcastle Narrows	Rockcastle River	Ky.
[7] 236			

[5] Nos. 217, 218, and 220 had been approved for construction as hydroelectric plants, but construction had not begun as of July 1, 1942.
[6] The Wolf Creek Dam was under construction as of July 1, 1942.
[7] See above, Tennessee River Basin, after No. 223.

HYDROELECTRIC POWER PROJECTS UNDER CONSTRUCTION, SOUTHEASTERN STATES, AS OF JULY 1, 1942 [8]

No.	Project name	Stream	State
237	Glenville	Little Tennessee	N. C.
238	Santee-Cooper	Santee and Cooper	S. C.
239	St. Lucie	St. Lucie	Fla.
240	Apalachia	Hiwassee River	N. C.
241	Chatuge	do	N. C.
242	Cherokee	Holston River	Tenn.
243	Fort Loudoun	Tennessee River	Tenn.
244	Kentucky	do	Ky.
245	Nottely	Nottely River	Ga.
246	Ocoee No. 3	Ocoee River	Tenn.
247	Watts Bar	Tennessee River	Tenn.

[8] The Wolf Creek Dam was under construction as of July 1, 1942.

EXISTING DEVELOPMENTS

Water Power Plants of 100 Horsepower or More in the States Designated, as of Jan. 1, 1941

ALABAMA

No.	Company name	Plant name	Stream
248	Alabama Power Co	Jordan Dam	Coosa.
[9] 249	do	Lay Dam	Do.
250	do	Martin Dam	Tallapoosa.
251	do	Mitchell Dam	Coosa.
252	do	Upper Tallassee	Tallapoosa.
[10] 253–a	do	Thurlow Dam	Do.
253–b	Mount Vernon-Woodbury Mills Co.	do	Do.
254	Alabama Water Service Co.	Elba	Pea.
255	do	Gantt	Conecuh.
256	do	Point A Hydro	Do.
257	Tennessee Valley Authority.	Wheeler Dam	Tennessee.
258	do	Wilson Dam	Do.
259	do	Guntersville Dam	Do.

[9] See also No. 158, Pat Lay Dam, an entirely different potential development.
[10] The Mount Vernon-Woodbury Mills Co. owns and operates one power unit in the power plant of the Alabama Power Co., Thurlow Dam.

FLORIDA

No.	Company name	Plant name	Stream
260	Florida Power Corporation	Dunnellon	Withlacoochee.
261	do	Jackson Bluff	Ochlockonee.
262	do	Moss Bluff	Oklawaha.
263	Florida Public Utilities	Marianna	Blue Springs Creek

GEORGIA

264	Athens Mfg. Co		Middle Oconee.
265	Bibb Mfg. Co	Porterdale	Yellow.
266	do	Columbus	Chattahoochee.
267	Callaway Mills	Milstead	Yellow.
[11] 268–a	City Mills Co	City Mills	Chattahoochee.
268–b	Georgia Power Co	City Mills Station	Do.
269	Crisp County Hydroelectric Co.	Flint River	Flint.
270	Eagle & Phoenix Mills	Eagle and Phoenix	Chattahoochee.
271	Elberton Municipal Electric Plant.		Beaverdam Creek.

[11] The City Mills Co. has two power plants at this dam, one of them leased to and operated by the Georgia Power Co.

GEORGIA—Continued

No.	Company name	Plant name	Stream
272	Georgia Power & Light Co.	Spring Creek	Spring Creek.
273	Georgia Power Co.	Augusta Canal	Savannah.
274	do	Barnett Shoals	Oconee.
275	do	Bartletts Ferry	Chattahoochee.
276	do	Burton	Tallulah.
277	do	Credille	Pataula Creek.
278	do	Flint River	Flint.
279	do	Goat Rock	Chattahoochee.
280	do	High Falls	Towaliga.
281	do	Langdale	Chattahoochee.
282	do	Lloyd Shoals	Ocmulgee.
[12] 283	do	Mitchell	Oconee.
284	do	Morgan Falls	Chattahoochee.
285	do	Nachoochee	Tallulah.
286	do	North Highlands No. 1	Chattahoochee.
287	do	Riverview	Do.
288	do	Tallassee	Oconee.
289	do	Tallulah	Tallulah.
290	do	Terrora	Do.
291	do	Tugalo	Tugalo.
292	do	Whitewater	Whitewater Creek.
293	do	Yonah	Tugalo.
294	Gilmore Bros.		Little Ogechee.
295	Habersham Mills		Soque.
296	Juliette Milling Co.		Ocmulgee.
297	Rosevell Mills, Inc.		Vickery Creek.
298	Simpson, E. P., & Co.		Toccoa Creek.
299	South Carolina Power Co.	Stevens Creek	Savannah.
300	Tennessee Valley Authority.	Blue Ridge	Toccoa.
301	Thompson-Weinman & Co. Inc.	Etowah Mills	Etowah.
302	Trion Co.		Chattooga.

MISSISSIPPI

None.

NORTH CAROLINA

No.	Company name	Plant name	Stream
303	Asheville, city of	Recreation Park	Swannanoa.
304	Buffalo Power Co.	Lenoir	Buffalo Creek.
305	Carolina Aluminum Co.	Cheoah	Little Tennessee.
306	do	Falls	Yadkin.
307	do	High Rock	Do.
308	do	Narrows	Do.
309	do	Santeetlah	Cheoah.
310	Carolina Mountain Power Co.	Lake Lure	Rocky Broad.
311	Carolina Power & Light Co.	Blewett	Peadee.
312	do	Buckhorn	Cape Fear.
313	do	Carbonton	Deep.
314	do	Eury	Little.
315	do	Lockville	Deep.
316	do	Lower Plant	Little.
317	do	Marshall	French Broad.
318	do	Tillery	Yadkin.
319	do	Waterville	Pigeon.
320	do	Weaver	French Broad.
321	Cascade Power Co.	Brevard	Little.
322	Cleveland Mill & Power Co.		First Broad.
323	Cliffside Mills, Inc.		Second Broad.
324	Columbia Manufacturing Co.		Deep.
325	Commonwealth Hosiery Mills.	Randleman	Do.
326	Duke Power Co.	Bridgewater	Catawba.
327	do	Carters Falls	Elkin.
328	do	Chatham	Do.
329	do	Gunpowder No. 1	Gunpowder Creek.
330	do	Gunpowder No. 2	Do.
331	do	Idols	Yadkin.
332	do	Little River	Little River.
333	do	Lookout	Catawba.
334	do	Ararat No. 1	Ararat.
335	do	Ararat No. 2	Do.
336	do	Mountain Island	Catawba.
337	do	Oxford	Do.
338	do	Rhodhiss	Do.
339	do	Spencer Mountain	South Fork.
340	do	Taylorsville	Lower Little.
341	do	Turner	Green.
342	do	Tuxedo	Do.
343	do	Walnut Grove	Dan.
344	do	Pilot Mountain	Peedee.
345	do	Old Fort	Catawba.
346	Dillsboro & Sylva Electric Light Co.	Dillsboro	Tuckaseegee.
347	City of Durham	Lake Michie	Flat.
348	East Tennessee Light & Power Co.	Elk Park	Elk.
349	Enterprise Mfg. Co.		Deep.

[12] See also No. 90, potential additional development. No. 283 is the existing development.

NORTH CAROLINA—Continued

No.	Company name	Plant name	Stream
350	Erwin Cotton Mills Co.	Cooleemee	South.
351	Flack, J. M.	Chimney Rock	Broad.
352	Glencoe Mills	Latonia Power Plant	Haw.
353	Glencoe		Do.
354	Gordon Mills, Inc.		Roaring.
355	The Henrietta Mills		Second Broad.
356	do	Caroleen Mill	Do.
357	Henry River Mills Co., Inc.		Henry Fork.
358	High Falls Mfg. Co.	High Falls Mill	Deep.
359	Highlands, Town of	Highlands	Cullasaja Creek.
360	Holt-Grant-Haw Mfg. Co.	Altamahaw Mill	Haw.
361	Huffines, W. L.	Huffines Mill	Reedy Fork.
362	Jackson Mills	No. 3	South Fork.
363	Julliard, A. D., & Co., Inc.	Brookford Mill	Henry Fork.
364	Laura Cotton Mills		Flat.
365	Ledbetter Mfg. Co.		Hitchcock Creek.
366	Leward Cotton Mills	Worthville	Deep.
367	Liledown Mill		Lower Little.
368	Lily Mills Co.		First Broad.
369	Long Shoals Cotton Mill		South Fork of Catawba.
370	Nantahala Power Co.	Andrews	Hiawassee.
371	do	Franklin	Little Tennessee.
372	New River Light & Power Co.	Middle Fork	Middle Fork.
373	North Wilkesboro, town of	North Wilkesboro	Reddies.
374	Northwest Carolina Utilities, Inc.	Blowing Rock	Watauga.
375	do	Burnsville	Cane.
376	do	Marshall	French Broad.
377	do	Sharp Falls	North Fork of New.
378	Oakdale Cotton Mills		Deep.
379	O'Dell, J. M., Mfg. Co.	Bynum Mills	Haw.
380	Peedee Mfg. Co.	Mill No. 1	Hitchcock Creek.
381	Randolph Mills, Inc.	Franklinville No. 1	Deep.
382	do	do	Do.
383	Ranlo Mfg. Co.	Harden	South Fork.
384	Rhyne, D. E., Laboratory Mill.	Rhyne Mill	Do.
385	Rockfish Mills, Inc.	Mill No. 1	Little Rockfish Creek.
386	do	do	Big Rockfish Creek.
387	Rocky Mount Mills		Tar.
388	Rocky River Power & Light Co.	Sanford	Rocky.
389	Sapona Cotton Mills	Sapona Mill No. 1	Deep.
390	Smoky Mountain Power Co.	Municipal Plant (Bryson City).	Oconalufty.
391	Southern States Power Co.	Murphy	Nottely.
392	Spray Cotton Mills		Smith.
393	Steeles Mills		Hitchcock Creek.
394	Tennessee Valley Authority.	Hiwassee Dam	Hiwassee.
395	Tuft's, Edgar, Memorial Association.	Banners Elk	Elk Creek.
396	Virginia Electric & Power Co.	Roanoke Rapids	Roanoke.
397	Virginia Mills, Inc.	Upper	Haw.
398	do	Lower	Do.
399	Washington Mills, Inc.	Mayo	Mayo.
400	do	Avalon	Do.
401	Webb Mill & Power Co.		Tar.
402	Wilson, city of	Municipal Plant	Contentnea Creek.

SOUTH CAROLINA

No.	Company name	Plant name	Stream
[13] 403	Aiken Stores	Bath	Horse Creek.
404	do	Langley Cotton Mills	Do.
405	Belton Light & Power Co.	Hillidays Bridge	Saluda.
406	Carolina Fibar Co.	Groundwood Pulp	Black Creek.
407	Clifton Mfg. Co.	Mill No. 1	Pacolet.
408	do	Mill No. 2	Do.
409	do	Mill No. 3	Do.
410	Columbia, city of	Water Works (Municipal).	Broad (canal).
411	Conestee Mills	Conestee	Reedy.
412	Converse, D. E., Co., The	Glendale	Pacolet.
413	Courtenay Mfg. Co., The		Little.
414	Duke Power Co.	Boyds Mill	Reedy.
415	do	Catawba	Catawba.
416	do	Cedar Creek	Do.
417	do	Dearborn	Do.
418	do	Fishing Creek	Do.
419	do	Gaston Shoals	Broad.
420	do	Great Falls	Catawba.
421	Duke Power Co. (Saluda)	Greenville	Saluda.
422	do	Gregg Shoals	Savannah.
423	do	Ninety-Nine	Broad.
424	do	Portman Shoals	Seneca.
425	do	Rocky Creek	Catawba.
426	do	Tumbling Shoals	Reedy.
427	do	Wateree	Wateree.
428	Duke Power Co. (Van Patton).	Woodruff	Enoree.
429	Franklin Process Spinning Mill.		Pacolet.

[13] Another No. 403, Bristol Supply Co., Bath.

SOUTH CAROLINA—Continued

No.	Company name	Plant name	Stream
430	Graniteville Co	Graniteville	Horse Creek.
431	do	Vaucluse	Do.
432	Greenwood County Commissioners.	Buzzards Roost	Saluda River.
433	Henrietta Mill, The	Cherokee Falls	Broad.
434	Lenhardt, R. F., Estate	Liberty	Twelve Mile Creek.
435	Lexington Water Power Co.	Saluda	Saluda.
436	Lockhart Power Co	Lockhart	Broad.
437	Lonsdale Co	Coneross	Coneross Creek.
438	Manetta Mills	Manetta Mills	Fishing Creek.
439	Martel Mills Corporation	Lexington Mill	Twelve Mile Creek.
440	do	Valley Falls Mill	Lawson's Fork.
441	Mitchell, James E., Co	Pelham Mills	Enoree.
442	Pacolet Mfg. Co	Lower Plant	Pacolet.
443	do	Upper Plant	Do.
444	Pelzer Mills	Plant No. 1	Saluda.
445	do	Plant No. 2	Do.
446	Piedmont Mfg. Co	Piedmont	Do.
447	Poole, E. A	North	Big Pond Creek.
448	Riverdale Mills	Riverdale Mills	Enoree.
449	Spartanburg Waterworks	Fingerville	South Pacolet.
450	South Carolina Electric & Gas Co.	Columbia	Broad (canal).
451	do	Parr Shoals	Broad.
452	Startex Mills	South Tiger	South Tiger.
453	do	Tucapau	Middle Tiger.
454	Union-Buffalo Mills Co	Fairmont	Do.
455	Union Mfg. & Power Co	Neal Shoals	Broad.
456	Victor-Monaghan Co	Apalache	South Tiger.
457	Virginia Mfg. Co	Fork Shoals	Reedy.
458	Ware Shoals Mfg. Co	Ware Shoals	Saluda.
	TENNESSEE		
459	Aluminum Co. of America	Calderwood	Little Tennessee.
460	Cookeville, city of	Burgess Falls	Falling Water.
461	East Tennessee Light & Power Co.	Wilbur	Watauga.
462	Ketner Bros	Victoria	Big Sequatchie.
463	Lawrenceburg, city of	Shoal Creek No. 1	Shoal Creek.
464	do	Shoal Creek No. 2	Do.
465	Lobelville Mill Co	Lobelville	Buffalo.
466	McDonald, J. A., & Sons	Rogersville	Holston.
467	Newport Coop. Mill. Assn., Inc.	Newport	Pigeon.
468	Nichol, W. M	Riverside Mills	Oostanaula Creek.
469	Rains, S. T. H	Denton Mill	Pigeon.
470	Ringgold Milling Co		West Fork.
471	Rockford Mfg. Co		Little.
472	Tennessee Eastern Electric Co.	Greenville No. 1	Nolichucky.
473	Tennessee Valley Authority.	Chickamauga Dam	Tennessee.
474	do	Columbia	Duck.
475	do	Estill Springs	Elk.
476	do	Hales Bar	Tennessee.
477	do	Harms	Elk.
478	do	McMinnville	Barren Fork.
479	do	Norris	Clinch.
480	do	Ocoee No. 1	Ocoee.
481	do	Ocoee No. 2	Do.
482	do	Pickwick Landing	Tennessee.
483	do	Rock Island	Caney Fork.
484	do	Sevierville	Little Pigeon.
485	do	Shelbyville	Duck.
486	do	Sparta	Calfkiller.
487	do	Walter Hill	Stone.
488	Townsend Light & Mill Co.		Little.
	NORTH CAROLINA		
489	Spray Cotton Mills		Smith.

Potential Hydroelectric Capacity

The installed hydroelectric power capacity of the region reviewed above is not much more than the potential capacity remaining for development. Potential water power in the nation as a whole was estimated by the United States Geological Survey in 1936 to be 42,753,000 horsepower available 90 percent of the time; of this total, the Survey estimated, 3,992,000 horsepower, or 9.3 percent of the total, was located in the seven Southeastern States. Allowances were made for the control of stream flow by means of reservoirs.

Only about half of the possible water power in the region has been developed.[8] (See Fig. 23.) In the normal course of events, the more desirable sites for power dams have been developed first, leaving those where the cost of producing power approaches the economic border line under past conditions. However, there are several factors favorable to the development of this potential capacity present in the region. Among these may be listed coal and other fuel deposits, and the fact that the development of power in the Southeast as a whole articulates unusually well with necessary navigation and flood-control projects. Perhaps a more vital consideration lies in the development of modern industrial technology. For example, the investment of many millions of dollars in power dams in the Great Smoky Mountains of North Carolina and Tennessee by the Aluminum Company of America would have been economically infeasible 40 years ago, before the development of aluminum processing by electrolysis which turned several potential power projects from uneconomical into extremely profitable undertakings. The increasing emphasis in modern technology upon the use of electricity for heat, energy, and chemical processes requires continual reexamination into the economic justification of investments in the development of potential hydroelectric-power developments.

Presented below is an array of potential water-power projects for the Southeast arranged in groups according to the river basins in which they are located. Many of them are multiple-purpose projects and are so indicated in the array; some of them have been approved for immediate construction. The list is meant to be inclusive, and some projects are included for which there exists only meager preliminary information. Further analysis may indicate that substantial revisions, both upward and downward, of capacity and cost estimates will be necessary. Except where indicated, the cost estimates are based upon complete development even though the project may serve multiple purposes. Finally, all projects are given a pre-

[8] A comparison between potential water power available 90 percent of the time and developed water power cannot be stated with accuracy. The amount of developed water power is expressed in terms of capacity of installed water wheels, and it is the general practice in the construction of water-power plants to install or make provision for generating units capable of utilizing stream flow much in excess of the flow available 90 percent of the time.

liminary rating. These ratings represent the opinion of the staff of the Southeastern Regional Planning Commission after consultation with the staff of the Federal Power Commission.

Projects numbered 1 are considered as worthy of early development and essential for river regulation with best over-all benefits and economy.

Projects numbered 2 appear economically feasible and may be desirable for national defense.

Projects numbered 3 are considered not suitable as a part of a comprehensive plan, but may be worthy of development with altered economic and technological conditions.

Projects numbered 4 are considered unsuitable as a part of a comprehensive plan, or should be discarded for economic reasons. They are included to make the inventory complete.

Asterisks (*) preceding project names indicate potential multiple-purpose developments combining two or more of these purposes: Flood control, power, navigation.

Project	Stream	State	Rating	Estimated ultimate capacity (horsepower)	Estimated cost
TAR RIVER BASIN					
*Webbs Bridge	Tar River	N. C	1	12,000	$4,0000,00
*Sharpsburg	do	N. C	3	12,000	3,500,000
*Tarboro	do	N. C	3	4,700	1,870,000
*Fishing Creek	Fishing Creek	N. C	1		
Melton Bridge	do	N. C	4	2,700	2,252,000
Sapony	Sapony Creek	N. C	4	5,400	2,892,000
NEUSE RIVER BASIN					
*Falls	Neuse River	N. C	1	21,400	3,257,000
*Milburnie	do	N. C	1	21,400	2,562,000
Wilson Falls	do	N. C	3	29,500	3,294,000
Smithfield	do	N. C	3	14,700	3,173,000
*Goldsboro	do	N. C	2		
Wiggins Mill	Contentnea Creek	N. C	3	2,400	1,287,000
Bakers Mill	Little River	N. C	3	4,300	1,382,000
CAPE FEAR RIVER BASIN					
*Smiley Falls	Cape Fear River	N. C	1	32,000	2,558,000
*Lillington	do	N. C	2	4,000	3,389,000
*Fayetteville	do	N. C	3		
Mandale	Haw River	N. C	1	30,000	5,783,000
Bynum	do	N. C	3	39,700	4,984,000
Moores Mill	do	N. C	3	30,000	2,957,000
New Hope	do	N. C	3	45,000	8,799,000
*Howards Mill	Deep River	N. C	2		1,598,000
Randleman	do	N. C	3		
Johnson Ford	do	N. C	3		
Glendon	do	N. C	3		
Lockville	do	N. C	3		
YADKIN-PEE DEE RIVER BASIN					
*Wilkesboro	Yadkin River	N. C	3	23,300	5,475,000
Elkin	do	N. C	3		
Donnaha	do	N. C	3		
High Point	do	N. C	1	37,500	6,500,000
*Junction	do	N. C	2	37,900	4,139,000
Tuckertown	do	N. C	2		
Greater Blewett [1]	Pee Dee River	N. C	2	169,600	13,908,000
*Morven	do	N. C	1	68,200	3,553,000
Cooleemee	South Yadkin River	N. C	3	12,800	3,760,000
Loves Ford	Rocky River	N. C	3	7,400	1,195,000
Nances Ford	do	N. C	3		
*Crumps Ford	do	N. C	3	26,500	3,432,000
Uharie	Uharie River	N. C	3		
Martins Bridge	Little River	N. C	3		
Lynches	Lynches River	S. C	3		
SANTEE RIVER BASIN					
*Cowans Ford	Catawba River	N. C	2		
Sugar Creek	do	N. C	3		
Courtney Island	do	N. C	3		
*Camden	Wateree River	S. C	1		
Lincolnton	S. Fork River	N. C	3		
Storage	Green River	N. C	1	2,700	1,500,000
Saluda	do	N. C	1	33,500	4,500,000
Foster	do	N. C	3	6,700	2,000,000
*Clinchfield	Broad River	N. C	1	40,200	8,500,000
*Greater Gaston Shoals.	do	S. C	2	70,400	13,700,000
Cherokee Falls	do	S. C	3		
SANTEE RIVER BASIN—continued					
*Greater Lockhart	Broad River	S. C	3	118,000	$27,400,000
Blairs	do	S. C	1	107,200	21,200,000
*Frost Shoals	do	S. C	1		
*Columbia [2]	do	S. C	1	115,000	15,835,000
*Kingsville	Congaree River	S. C	3		
Trough	Pacolet River	S. C	3		
Nesbit	Tiger River	S. C	3		
Burnt Factory	do	S. C	3		
Tiger	do	S. C	2	13,400	6,200,000
Sedalia	Enoree River	S. C	3		
Enoree	do	S. C	2	16,100	3,100,000
Venus	Saluda River	S. C	3		
The Forks	do	S. C	3	11,500	2,169,000
Upper Ware Shoals	do	S. C	3	11,500	1,347,000
Buzzards No. 2	do	S. C	3		
EDISTO RIVER BASIN					
Edisto	Edisto River	S. C	1	12,000	4,000,000
SAVANNAH RIVER BASIN					
*Toxa-Rosman	Toxaway River	N. C.-S. C	2	33,500	4,186,000
Oakland	Horsepasture	N. C.-S. C	2	33,500	4,086,000
War Woman [3]	Chattooga River	Ga.-S. C	2	16,200	2,852,000
Sand Bottom	do	Ga.-S. C	4	15,800	1,717,000
Rogues Ford	do	Ga.-S. C	4	20,600	2,206,000
Long Creek	do	Ga.-S. C	4	22,200	1,730,000
Camp Creek	do	Ga.-S. C	4	26,200	1,867,000
Old Pickens	Keowee Little River	S. C	1	42,100	7,635,000
Clemson	Keowee River	S. C	3	13,100	1,819,000
Sugar Creek	Tugaloo	Ga.-S. C	3	28,200	3,716,000
Hartwell	Tugaloo-Savannah	Ga.-S. C	1	130,000	13,983,000
Middleton Shoals	Savannah River	Ga.-S. C	3	50,200	4,979,000
Calhoun Falls [4]	do	Ga.-S. C	3		
Carter's Island	do	Ga.-S. C	3	57,600	6,404,000
Trotters Shoals	do	Ga.-S. C	3	102,200	6,763,000
*Clark Hill	do	Ga.-S. C	1	234,600	31,400,000
*Brighams Landing	do	Ga.-S. C	3	34,000	13,000,000
Bowman	Broad River	Ga	3	31,900	5,297,000
Carlton	do	Ga	3	23,400	3,651,000
Anthony Shoals	do	Ga	1	42,100	7,484,000
ALTAMAHA RIVER BASIN					
Talassee	Oconee River	Ga	3	6,400	2,601,000
Mitchell Bridge	do	Ga	3	3,300	860,000
Athens	do	Ga	3	2,900	1,029,000
*Laurens Shoals	do	Ga	3	36,200	7,326,000
*Furman Shoals	do	Ga	1	60,000	9,000,000
High Shoals	Apalachee River	Ga	3	1,900	915,000
Price Mill	do	Ga	3	800	433,000
Coppin Shoals	do	Ga	3	1,300	728,000
Anneston	Yellow River	Ga	3	2,300	1,032,000
Lee Shoals	do	Ga	3	1,400	1,028,000
Peachstone	South River	Ga	3	4,200	1,720,000
McCay Creek	do	Ga	3	4,400	2,279,000
Factory Shoals	Alcovy River	Ga	3	13,900	2,641,000
Lamar Ferry	Ocmulgee River	Ga	3	9,700	1,991,000
Jackson Bridge	Towaliga River	Ga	3	2,800	1,603,000
Dames Ferry	Ocmulgee River	Ga	1	8,400	1,875,000
Taylor Shoals	do	Ga	1	11,200	1,762,000
SATILLA RIVER BASIN					
Pearson	Satilla River	Ga	3	7,100	2,079,000
Waycross	do	Ga	3	12,900	3,587,000
Hurricane Creek	do	Ga	1	16,500	3,946,000
Burnt Fort	do	Ga	3	36,200	12,802,000
ST. MARYS RIVER BASIN					
Moniac	St. Marys River	Ga.-Fla	3	2,500	9,446,733
MacClenny	do	Ga.-Fla	1	11,300	8,484,406
Traders Hill	do	Ga.-Fla	3	7,600	6,099,642
SUWANNEE RIVER BASIN					
Okefenokee	Suwannee River	Ga	2		
Site No. 4	do	Fla	1		
Site No. 3	do	Fla	3		
Site No. 2	do	Fla	3		
Sante Fe	Sante Fe River	Fla	3		
APALACHICOLA RIVER BASIN					
*Roswell	Chattahoochee River	Ga	1	57,000	12,202,000
Vinings	do	Ga	3		
Cedar Creek [5]	do	Ga	4	60,600	6,338,000
*Franklin	do	Ga	2		

See footnotes at end of table.

See footnotes at end of table.

Project	Stream	State	Rating	Estimated ultimate capacity (horsepower)	Estimated cost
APALACHICOLA RIVER BASIN—continued					
*Lanier	Chattahoochee River	Ala.-Ga.	2	75,600	$9,018,000
Clapps Factory [6]	do	Ala.-Ga.	4		
Fort Benning	do	Ala.-Ga.	4	10,500	3,999,000
Florence	do	Ala.-Ga.	4	11,300	3,481,000
Fort Gaines	do	Ala.-Ga.	4	14,500	3,601,000
Columbia	do	Ala.-Ga.	4	15,700	3,913,000
Paramore Landing	do	Ala.-Ga.	4	10,000	3,681,000
*Woodbury No. 2	Flint River	Ga.	2	32,000	7,353,000
Wynns Bridge	do	Ga.	2		
*Potato Creek	do	Ga.	3	22,700	4,024,000
*Auchumpkee Creek	do	Ga.	3	27,300	5,116,000
Nokomis	do	Ga.	3		
Montezuma	do	Ga.	3		
Vienna	do	Ga.	3		
Upper Albany	do	Ga.	3		
*River Junction	Apalachicola River	Fla.	1		
*Newton	do	Ga.	3		
MOBILE RIVER BASIN					
Alabama-Coosa Branch					
*Gilmer	Etowah River	Ga.	3	53,600	13,040,000
Canton	do	Ga.	3	9,300	1,592,000
*Allatoona	do	Ga.	1	88,500	13,200,000
Kingston	do	Ga.	3	18,000	1,699,000
*Cartecay	Coosawattee River	Ga.	1	7,800	3,163,000
Upper Coosawattee	do	Ga.	2	22,500	5,168,000
Lower Coosawattee [7]	do	Ga.	4	25,700	2,889,000
*Jackson River or Alaculsey Valley.	Conasauga River	Tenn.	3	4,600	2,165,000
*Little River	Little River	Ala.	2	9,700	1,723,000
*Mills Creek	Mills Creek	Ala.	2	3,400	1,049,000
*Terrapin Creek	Terrapin Creek	Ala.	2	2,700	1,207,000
*Big Canoe Creek	Big Canoe Creek	Ala.	2	2,700	1,242,000
*Yellowleaf Creek	Yellowleaf Creek	Ala.	3	1,500	1,034,000
*Waxahatchee Creek	Waxahatchee Creek	Ala.	3	2,400	868,000
*Hatchet Creek	Hatchett Creek	Ala.	2	15,000	4,523,000
*Weogufka Creek	Weogufka Creek	Ala.	3	3,400	1,490,000
*Leesburg Dam	Coosa River	Ala.	3	37,000	6,008,000
*Pat Lay Dam	do	Ala.	2	37,000	4,660,000
Embry Bend Dam [8]	do	Ala.	4	30,600	3,694,000
*Howell Mill Shoals Dam.	do	Ala.	1		
Fort William Shoals Dam [9]	do	Ala.	4	38,600	4,799,000
*Wetumpka Dam	do	Ala.	3	56,300	4,737,000
*Crooked Creek	Tallapoosa River	Ala.	3	53,100	6,064,000
*Jones Bluff	Alabama River	Ala.	1		
*Yellow Bluff	do	Ala.	1		
MOBILE RIVER BASIN					
Tombigbee Branch					
*Lock and Dam No. 1 (a). [10]	Tombigbee River	Ala.	2		
Lock and Dam No. 1	do	Ala.	4	9,700	2,046,600
Lock and Dam No. 2	do	Ala.	4	28,700	7,019,900
*Demopolis Lock and Dam No. 4.	do	Ala.	1	46,200	9,262,900
*Lock and Dam A	do	Ala.	3	26,000	5,134,100
*Storage Dam No. 4	Noxubee River	Miss.	2	5,200	3,433,300
*Lock and Dam B	Tombigbee River	Ala.	3	18,900	4,287,900
*Lock and Dam C	do	Miss.	3	17,600	4,428,700
*Storage Dam No. 5	Tibbee River	Miss.	2	6,800	6,701,700
*Storage Dam No. 6	Buttahatchie River	Miss.	2	6,200	3,121,200
*Lock and Dam D	Tombigbee River	Miss.	3	4,000	3,643,100
*Lock and Dam E	do	Miss.	3	3,500	3,580,900
*Lock and Dam F	do	Miss.	3	1,600	2,854,500
*Lock and Dam G	East Fork Tombigbee River.	Miss.	3	1,500	2,995,400
MOBILE RIVER BASIN					
Warrior and Black Warrior River Branch					
*Lock and Dam No. 7.	Warrior River	Ala.	2	26,500	6,614,700
*Lock and Dam No. 10.	Black Warrior River.	Ala.	2	21,200	6,490,300
*Lock and Dam No. 13.	do	Ala.	3	7,000	4,164,000
*Lock and Dam No. 14.	do	Ala.	3	8,800	3,634,000
*Lock and Dam No. 15.	do	Ala.	3	8,800	3,934,000
*Lock and Dam No. 16.	do	Ala.	3	12,900	3,791,100
*Lock and Dam No. 17.	do	Ala.	1	97,600	10,705,000
*Lock and Dam No. 18.	Mulberry Fork River.	Ala.	3	7,000	5,415,800
MOBILE RIVER BASIN					
Warrior and Black Warrior River Branch—Con.					
*Lock and Dam No. A.	Locust Fork River	Ala.	3	5,000	$4,833,500
*Lock and Dam No. B.	do	Ala.	3	7,900	6,468,300
*Storage Dam No. 1	Sipsey Fork River	Ala.	1	19,200	6,846,500
*Storage Dam No. 2	Mulberry Fork River.	Ala.	1	5,100	4,671,800
*Storage Dam No. 3	Locust Fork River	Ala.	1	18,400	7,746,400
TOMBIGBEE-TENNESSEE RIVER WATERWAYS [11]					
Epes Lock and Dam	Tombigbee River	Ala.	4	8,000	
Cochrane Lock and Dam.	do	Ala.	4	8,000	
PEARL RIVER BASIN					
*Strong River	Strong River	Miss.	3	6,800	5,777,400
*Jackson	Pearl River	Miss.	2	16,200	22,347,100
*Dam No. 10	do	Miss.	3	11,800	8,699,700
*Dam No. 9	do	Miss.	3	8,800	5,861,300
*Dam No. 8	do	Miss.	3	9,300	5,343,000
*Dam No. 7	do	Miss.	3	9,500	5,256,200
*Dam No. 6	do	Miss.	3	9,700	6,003,100
*Dam No. 5	do	Miss.	3	9,800	5,124,500
*Dam No. 4	do	Miss.	3	10,200	6,242,300
*Dam No. 3	do	Miss.	3	10,500	6,033,600
*Dam No. 2	do	Miss.	3	10,100	6,110,800
*Dam No. 1	do	Miss.	3	11,100	7,454,900
YAZOO RIVER BASIN					
*Arkabutla	Coldwater River	Miss.	3		
*New Grenada	Yalobusha River	Miss.	3		
*Enid	Yocona River	Miss.	3		
TENNESSEE RIVER BASIN					
*Douglas	French Broad River	Tenn.	1	144,700	30,500,000
Forgey Creek	Holston River	Tenn.	3	53,600	20,000,000
Backmans Ford	do	Tenn.	3	107,200	29,000,000
*Riddle Creek	South Fork of Holston River.	Tenn.	2	100,500	23,000,000
*Cardens Bluff	Watauga River	Tenn.	2	80,400	25,000,000
Buffalo Ford	Holston River	Tenn.	3	40,200	18,000,000
*Fontana	Little Tennessee River.	N. C.	1	268,000	48,000,000
*Chilhowee	do	Tenn.	2	40,200	12,000,000
*Melton Hill	Clinch River	Tenn.	2	42,900	8,000,000
Austral	Hiwassee River	Tenn.	3	40,200	11,000,000
Fines Creek	Big Pigeon River	N. C.	3	80,400	25,000,000
CUMBERLAND RIVER BASIN [12]					
*Wolf Creek	Cumberland River	Tenn.	1		
Celina	do	Tenn.	1	83,100	10,152,000
Carthage	do	Tenn.	1	97,800	9,347,000
Old Hickory	do	Tenn.	1	160,800	14,800,000
Helenwood	do	Tenn.	1	70,800	11,004,000
Devils Jump	do	Ky.	1	41,100	7,732,000
*Center Hill	Caney Fork River	Tenn.	1	105,900	17,493,000
*Dale Hollow	Obey River	Tenn.	1	54,500	10,800,000
Cumberland Falls	Cumberland River	Ky.	1	80,400	11,718,000
Canton	do	Ky.	1	162,100	21,765,000
Laurel	Laurel River	Ky.	1	37,300	7,553,000
Rockcastle Narrows	Rockcastle River	Ky.	1	25,700	6,302,000

See footnotes at end of table.

[1] The Greater Blewett project is a redevelopment project.

[2] The Columbia project is a re-regulating project and may be built on the Broad, Saluda, or Congaree River.

[3] If War Woman project is diverted to Tallulah River, the following projects would be eliminated: Sand Bottom, Rouges Ford, Long Creek, and Camp Creek.

[4] The Calhoun Falls project is an alternate project for both Carter Island and Trotter Shoals projects.

[5] Cedar Creek project may be superseded by alternate Franklin project.

[6] Clapps Factory project may be superseded by alternate North Highlands project.

[7] Lower Coosawattee project may be superseded by alternate upper Coosawattee project.

[8] Embry Bend project may be superseded by Pat Lay Dam project.

[9] Fort William Shoal project may be superseded by Howell Mill Shoals Dam project.

[10] Lock and Dam No. 1 (a) is planned for higher head project and would eliminate proposed Lock and Dam Nos. 1 and 2.

[11] The Epes and Cochrane Dams should be considered as alternates to, and not as additional to, "Lock and Dam A" and "Lock and Dam B", respectively, as listed under *Tombigbee Branch*, above.

[12] Projects listed under Cumberland River Basin include cost of power only.

Of the power projects listed above, the Fontana Dam on the Little Tennessee River and the Douglas Dam on the French Broad River are already under construction by the TVA to meet defense needs and the Allatoona Dam has been authorized. The following additional projects appear specially appropriate for early construction for power needed in the war program, though their construction must depend largely upon the availability of critical material, especially generating machinery and steel:

Project	River	State	Estimated ultimate capacity (horsepower)	Estimated cost
High Point	Yadkin	North Carolina	37,500	$6,500,000
Blairs	Santee	South Carolina	107,200	21,200,000
Clinchfield	do	do	40,200	8,500,000
Frost Shoals	do	do	26,800	
Clark Hill	Savannah	do	234,600	31,400,000
Roswell	Chattahoochee	Georgia	67,000	11,000,000

The projects designated as multiple-purpose developments deserve special attention. Some of them have been authorized for construction; others merit further careful study. In most of these projects, the dominant purpose for the initiation of construction will be for navigation or the development of hydroelectric power. Whatever may be the incentive, all possibilities for multiple use should be fully explored. Many reservoirs constructed for navigation can, often with proportionately small additional expense and provision for scientific regulation, serve also for flood control and power. The same principle may operate in the instance of any project constructed for a single purpose. Again, many reservoirs built for these purposes will provide recreational benefits with only minor additional expense, though forethought must be given to safeguard these benefits for general public use. Other reservoir recreational benefits may require the construction of minor dams and control works on side streams, approximately at the spillway level of the dam. All reservoirs can be constructed with a minimum-stage conservation pool which will sustain fish and waterfowl life during low-water periods.

The Southeast is well acquainted with the value of multiple-purpose river developments, of which the largest and most complete is that of the Tennessee Valley Authority. Here an entire river system, extending hundreds of miles from its mouth in Kentucky to its headwaters in the Tennessee and North Carolina mountains, is so regulated by a series of dams as to provide the maximum benefits under each of three purposes—flood control, power, and navigation—and benefits under incidental purposes, such as recreation, which promise ultimately to compete with benefits under the major purposes in terms of economic value. The experience of the Authority in constructing and administering its program will provide a useful source of reference for the planning and administration of future multiple-purpose river developments in the region.

In view of the imperative need of creating for the population of the region much larger opportunity in nonagricultural lines of employment, the hydroelectric power resources of the Southeast have particularly significant values. Their power reserves can be used to implement industries of the kinds and in the places which will benefit the region most. The processing of agricultural products, and the further processing of goods which now are customarily semifinished, will need more of the region's power resources.

Water-Control Problems

The presence of valuable regional water resources, while a source of tremendous wealth when geared to regional needs for transportation and power, poses special problems of water and soil conservation and of health. The persistence of Southeastern trends toward increased industralization and urbanization over the past decade has aggravated these special problems of water control. Moreover, careful students of economic development in this report, as elsewhere, envision an even greater urbanization and industrialization before the Southeast will have attained a higher level of income through a full use of its resources and manpower.

Other regions of the Nation have long since experienced the type of economic development which in recent decades has occurred in the Southeast and which holds so much promise. The region may profit from the costly errors of others, errors which are already incipient here.

To make its water resources serve future needs, there must soon develop a clear regional understanding of the limitations of these resources. Such an understanding must be transmitted to future generations in the Southeast.

Safeguarding of Water Supplies

To a people preoccupied with the problems of the single cash-crop system, the water resources of the Southeast have seemed so abundant, in comparison to human needs, that they have appeared free as air. State legislation has failed to sense much reality in the concept of public rights in water resources; they have seemed so limitless that private rights in water (as in land) have been given much more attention than public rights. Yet, experience elsewhere has demonstrated that best use of other resources, especially in industrial

development, leads to congestion of population and industry so great as to strain the capacity of local water resources to meet local needs and that unless these needs are met and supplies safeguarded, the permanence of industries has been jeopardized; that there is a major public interest in safeguarding the quantity and quality of the community water supply for which a substantial degree of public regulation is entirely feasible in light of engineering skills and well-established legal precedent.

State Responsibility to Maintain Public Rights in Water

It will be of most practical value to emphasize those aspects of water use and control that are primarily the right and the responsibility of the States and their municipal subdivisions. The principal responsibility of the States is the protection of the domestic water supply as the highest right in waters, and the restraint of such stream pollution as would invade the rights of others; that of the municipal subdivisions is to provide community systems for water supply and for disposal of liquid wastes. (The Federal Government now assumes the responsibility for flood control and, as in the past, for providing navigation improvements, where economic justification is shown. Furthermore, it is increasingly concerned with safeguarding the development of hydroelectric power in connection with dams for flood control and navigation.) Private enterprise makes large local uses of streams for hydroelectric power development, for industrial water supply, or for carrying off industrial waste; and often it is the largest consumer of local underground water supplies. It is the responsibility of the States and of their municipal subdivisions to exercise prudent foresight in gauging future public needs, and to obtain adequate consideration of them in plans for national and private developments. The two main public rights, then, which the States must guard against encroachment by other interests, are the maintenance of water quantity and the maintenance of water quality sufficient for community needs. These rights the States must guard by equitable regulation.

Regulation of Ground-Water Supplies

All sources of the region's water supply may be viewed as flowing streams. During and shortly after rainstorms, the water courses run strong and full from the thin sheet of water that flows into them over the land surface. Between storms, they flow more weakly from water that feeds slowly into them from the soil, water which has seeped down below the wet surface during and after the rainstorms. The nature of this ground-water flow needs more public attention than has been given it. Two things are required to make this flow steady and dependable; first, a porous upper soil that lets the water soak down rather than flow off over the surface; and second, a porous, open, subsoil that takes the water into storage and lets it flow steadily to stream beds or to wells. In the mountains and in the vast red-clay Piedmont areas of the Southeast, neither condition is generally met; the soil and subsoil are tight, and the layer of rotten rock between the subsoil and the solid rock is seldom thick enough to store a large supply or open enough to permit easy lateral flow. As a result, it is not dependable for a large supply from wells; and the upland streams of the region quickly fail in time of drought because they are not fed by a strong flow from underground reserves. Inevitably, then, if the natural dry-weather flow of a watercourse is not large enough to supply local needs, the only recourse is to build surface reservoirs to hold enough of the storm-water surface flows to tide over the drought periods. Piedmont ground waters are rarely susceptible to successful artificial development.

However, in the Coastal Plains and in the rolling uplands of the western part of the region the underground reserves are all-important. The porous surface soils freely pass the rainfall downward; and underneath are thick beds of sand and gravel, which pitch toward the sea more steeply than does the land surface and enter the ocean bed beyond the coast line. As a result, those lower beds are reservoirs, which are constantly discharging into the ocean bed but which, at the same time, are constantly being replenished by rainfall that enters them far inland where they reach the land surface. This deep ground-water flow is much more extensive and important than that which seeps into the water courses and rivers of the coastal plain. It can safely be drawn on in large quantities for community and industrial needs, but even then there is need for equitable State regulation of its use. It will not support a concentrated, steady withdrawal in any one local area at a greater rate than the rate of replenishment from the intake of new rainfall. Excessive pumpage from new private wells (for air conditioning or other industrial use) if located too near a city's well-field may, therefore, cut seriously into the public supply. If near the coast, pumping at a rate in excess of that of freshwater inflow from inland may draw in salt water from the ocean. These observations are based on experience with the water supplies in a number of Southeastern cities, and of costly industrial plants, which have failed because of brine drawn into their water supply. In some localities of southern Florida, southeastern Georgia, and southern Mississippi the unregulated use of ground water is exceeding the supply, the water level is being continually lowered, and salt

water is forcing its way in to replace it. In Florida, it is estimated, 80 percent of the municipalities are supplied from ground-water sources. Throughout the region there are localities where vast quantities of water are wasted by uncontrolled flowing wells where only a part of the water is used (as in air conditioning) and by abandoned flowing wells of which no use whatsoever is made. Of all of our Southeastern States, only scientific surveys to determine the limits of its ground-water supplies, and adopted realistic modern legislation to regulate their equitable use. The other six States are not yet prepared to regulate ground-water use so as to meet the requirements of an orderly and stable expansion of industry.

Surface-Water Supplies

Surface-water supplies are used by many cities and industrial plants of the region. Except on large rivers, stream flow is seldom adequate during dry seasons, necessitating storage reservoirs. Moreover, surface supplies are often contaminated and can be used only in connection with expensive purification plants. Upward regulation of the constant rate of supply from a surface stream can be had only from reservoir storage of freshet flows. To meet modern standards there is need for something more than casual planning to provide reservoirs of water for public supplies. In some localities, the importance of sanitary control over the watershed may dictate and individual reservoir for a community supply. In other localities, however, the storage to meet the domestic and industrial water needs of a large community may be provided most economically in a reservoir built to serve other uses as well. Thus, a reservoir built by private capital for power production might be the most economical site for additional conservation storage for communities downstream. Federal law protects future navigation rights in the planning and building of such a private dam, and it may provide for additional reservoir capacity at Federal cost for flood detention; but the initiative and the financing to provide additional conservation storage for public water supplies must come from the municipalities concerned, and if any legislation is necessary to aid such an arrangement, the State must supply it. Similarly, if the Federal Government builds a dam for purposes of flood detention, Federal law requires the responsible Federal authorities to anticipate the future needs of navigation and of hydroelectric power production in the planning of the project; and Federal law provides the possibility of municipalities' obtaining additional conservation storage by paying the additional cost required. But the foresight and the initiative required are the responsibility of the local agencies concerned—the communities that need the additional water, or the agencies of the State that, for any reason, are concerned in helping their communities to adopt enlightened and skillful management practices.

It will be found that some types of private or Federal reservoir operations provide downstream discharges at all times greater than the minimum rate of natural stream flow which the law requires be released. Thus, a reservoir operated for navigation so as to produce downstream channel depths greater than those of natural dry-season flows provides (for its own purposes and at its own cost) an excess volume which a large community may draw upon, use, and return to the stream. A private hydroelectric power reservoir will yield the same free benefit if it is operated for the purpose of producing the largest possible amount of continuous, prime power. If, however, its primary purpose is to carry intermittent peak loads (as is not unusual) rather than a steady base load of power production, then the release through the dam while the reservoir is being filled for its next power run may be no more than the minimum required by law. A dependable arrangement for such a reservoir to supply downstream communities with continuous flows larger than natural low flows must, therefore, be negotiated with thorough and equitable consideration for the private (or Federal) rights connected with the primary purposes for which the reservoir was built.

Maintenance of Water Quality by Regulation

The foregoing discussion points to the need for broadening legislative perception of public rights in water in order that our natural water supplies may be more appropriately and more intensively used. The need for wider public appreciation of public rights in water is many times greater, however, in the maintenance of the quality of water.

In urban areas within the boundaries of every one of the Southeastern States stream-pollution problems have occurred from the discharge into streams of municipal sewage, domestic waste and storm-water drainage, coal and other mining wastes, industrial wastes from the processing of organic and inorganic products, oil and brine wastes, and the drainage of watersheds occupied by insanitary privies into community water supplies. Through the resultant pollution health may be impaired or life lost, the usefulness of water curtailed, shellfish industries damaged or destroyed, and recreational activities and development prevented.

The following tabulation shows some points in four States at which excessive stream pollution occurs: [9]

FLORIDA

Stream	Location	Cause
St. Johns River	Jacksonville	Jacksonville sewer system.
Halifax River	Daytona Beach	Daytona Beach sewer system.
Lake Worth	West Palm Beach	West Palm Beach sewer system.
Do	Palm Beach	Palm Beach sewer system.
Biscayne Bay	Miami	Miami sewer system.
Hillsborough Bay	Tampa	Tampa sewer system.
Tampa Bay	St. Petersburg	St. Petersburg sewer system.

GEOROIA

Chattahoochee River	Atlanta	Atlanta sewer system.
Do	LaGrange	Do.
Do	Columbus	Columbus sewer system.
Coastal Waters	Brunswick	City of Brunswick.
Satilla River	Waycross	Waycross sewer system.
Ocmulgee River	Macon	Macon sewer system.
Oconee River	Milledgeville	Milledgeville sewer system.
Do	Athens	Athens sewer system.
Do	Griffin	Cannery waste.
Chickamauga Creek, Tennessee River.	Northwest Georgia	Bleacheries and dyers waste.
Big Cedar Creek	Cedartown	Industrial waste.
Etowah River	Cartersville	Barytes mining waste.
Coosa River	Rome	Industrial waste.
Silver Creek	Glendale	Do.
Chattahoochee River	Bolton	Do.
Sweetwater Creek, Chattahoochee River.	Clarkston	Do.
Chattahoochee River	Buford	Do.
Long Creek, Chattahoochee River.	LaGrange	Do.
Ochlockonee River	Moultrie	Do.

MISSISSIPPI

Tallahalla Creek	Laurel	Industrial waste and domestic sewage.
Toomsuba Creek	Meridian	Domestic sewage.
Old Town Creek	Tupelo	Do.
Mississippi Gulf	Coastal waters	Do.
Town Creek and Pearl River.	Jackson	Do.
Do	Newton	Do.
Leaf River	Hattiesburg	Do.
Do	Whitfield	Do.
Do	Oxford	Do.
Do	Starkville	Do.

ALABAMA [1]

Chattahoochee River	Lanett	West Point (Ga.), sewer system.
Do	Shawmut	Lanett sewer system.
Do	Langdale	West Point and Lanett sewer systems.
Do	Fairfax	Do.
Do	River View	Do.
Mobile Bay	Mobile (Chickasaw and Prichard).	Mobile and suburban sewer system.
Five-Mile Creek	Mobile	Insanitary privies, community watershed.

[1] Sewage from the Birmingham, Ala., metropolitan area is discharged to the streams in and near Birmingham with only minor treatment. Wastes from manufacturing processes, such as pickling wastes from the steel industry, coal washings and acid from mines, enter streams in the Birmingham area. The degree of stream pollution has not been accurately determined. At Tuscaloosa, raw sewage and partially treated industrial wastes are discharged into Black Warrior River above the dam. The degree of pollution has not been ascertained.

In the coal-mining areas of Walker, Jefferson, Bibb, Tuscaloosa, Shelby, and Blount Counties, acid wastes from abandoned mines are discharged into surface streams. Some of the mines have been sealed, but many still discharge directly into the streams.

The foregoing tabulation is not inclusive; rather it indicates some areas where pollution problems have been carefully observed. For the rest, raw, untreated sewage is discharged from many city sewer systems into streams which often constitute sources of supply for neighboring communities. Again, many of the smaller towns in each State do not have sewer systems and in many of the towns and in larger cities where sewer systems have been constructed, only part of the houses are connected with the sewers. In one city of 6,800 population, 72 percent of the houses are not connected; in another of 28,000 population, 58 percent of the houses are not connected. In rural areas contiguous to numerous towns and cities, watersheds providing community water supplies are often occupied by dwellings without adequate sanitary privies or with no privies. Their wastes, washed into streams by rains, often constitute a major pollution problem.

It is all-important, at the outset, that the various uses which streams must serve in the more complex community be recognized and that reasonable and equitable attitudes and standards be adopted. A standard of "pristine purity" or callousness to gross pollution are equally unrealistic; a court of law will not support either extreme. It is not humanly possible to maintain perfect sanitary purity in any stream whose watershed is occupied by animal life. Sanitarians find that even in rural areas, the organic matter flushed into a stream by the first of a rainstorm may raise the stream's biological oxygen demand to a degree comparable to that due to a town's sewer discharge. A surface stream which flows through inhabited regions must necessarily serve in some degree to carry away the waste produced by the inhabitants. The practical questions to be solved for any particular part of the stream, therefore, are: (1) What is the degree of purity which is so indispensable to human needs in that area, that it must be obtained, regardless of cost? (2) What combination of expedients to produce that degree of purity will impose the least total hardship on the individuals, the communities, and the agencies whose cooperation is necessary to attain it? (3) What public regulation must be applied through law to require cooperation and to establish a fair and equitable distribution of the burden among those who must cooperate?

Modern waterworks engineering affords dependable and reasonably economical processes for settling and filtering a large amount of organic impurity and mineral turbidity out of relatively dirty river water, for chemically destroying bacterial organisms, for removing odors and tastes, and for restoring its sparkle by oxygenation, until it is in every practical respect as pure as the water that issued from the mountain sources. If such a river is the only reasonably available source of a community's water supply, the law may be expected to sustain that community's right, against upstream water users, to have the stream delivered to it at all times with its man-made pollution so diluted that the downstream community can, by well established and reasonably economical treatment, make it fit for use.

[9] Data for North and South Carolina are not available.

Drought-period stream flows are, of course, apt to carry the highest concentrations of human and industrial wastes from upstream water users. Manifestly, there are only two ways in which the concentrations can be reduced so that the downstream raw water can be safely processed. Either the heavily polluted low flows must be diluted by adding a large flow of clean water from reservoir storage higher upstream; or part of the pollution must be kept out of the stream in the first place. The occasional opportunity for a community to buy economical reservoir storage space in a reservoir built for other purposes has been mentioned above. The value of such diluting water depends on its cleanliness and the volume of oxygen it brings to break down impurities in the river below. In the direction of keeping polluting substances out of the stream, sanitary engineering has also developed effective methods of treating many kinds of wastes. The cost of treatment varies with the kind of waste, and with the degree of purity required. Some industrial wastes are difficult to treat, and for a few of them, no economical and effective treatment is known.

The above review indicates how complex a problem it is to determine, in the first place, the most economical over-all combination of means to hold a stream within tolerable limits of pollution; and then, to find the legal and administrative mechanism to make an equitable apportionment of the cost and to enforce cooperation.

It is a problem comparable in magnitude to the engineering problems of large industrial corporations. Piecemeal suits for damages or under the general nuisance statutes before county court juries from county to county up and down a stream will not solve it. The causes and effects may involve most of the counties in a river system. Often they involve more than one State. The problem of keeping their streams fit to aid the highest development of their people, is, however, one that State governments must handle. It is evident, therefore, that a State must have in its employ an organization of sufficient technical competence and prestige to safeguard its people's needs of clean water, present and future.

Each of the States of the Southeast employs men of the required training in the Sanitary Engineering Division of its State Board of Health. These staffs are generally large enough to keep abreast of normal administrative routine duties. Few of them are equipped with research staff, or opportunity to make broad study of future requirements. None the less, research on the phenomena, effects, and treatment of pollution are prerequisites of equitable regulation.

The following tabulation gives the distribution according to funds available for pollution control of a number of States representing various sections of the Nation:[10]

State funds wholly or in part available for water pollution control	Number of States	Average per capita expenditure for pollution control based on urban population
No appropriation	4	
No specific funds available	10	
Expenditures $1,000 to $5,000	9	$0.0043
Expenditures $5,000 to $10,000	6	.0043
Expenditures $10,000 to $25,000	9	.0036
Expenditures $50,000 to $100,000	1	.016
Expenditures $100,000 to $150,000	2	.027

The Department of Public Health for the State of Tennessee has estimated that adequate surveys and supervision of pollution in that State would require a minimum of four to six workers and would cost not less than $10,000 per annum.

In planning projects to meet the water supply or waste-disposal needs of communities whose problems are inter-related, the possibility of solving their problems by a joint project ought to be fully considered. A comprehensive project often affords large economies, not only in first construction cost but also in subsequent operation cost, as compared with the costs of a series of units independently planned and operated. Precedents for more economical public business management of that kind exist in other regions, where water districts and sanitary districts have been formed to solve local-area problems. Where independent but related waterworks or sewage treatment plants have already been built, it is sometimes possible to obtain substantial increases in efficiency and economy of operation through the joint employment of an operation director of broader experience and competence than any one of them could afford to employ singly. Such group economies cannot be expected to result from the initiative and leadership of a single municipality. They are hardly attainable except under the leadership of a State sanitary engineering division, so ably staffed as to deal effectively with regional problems in the first place, and able to command state-wide confidence.

Many manufacturers who are responsible for serious stream pollution are among the most broadminded and farsighted of citizens. When competent advisory aid is available to them from the State's technical staff, they are reasonably responsive to enlightened public opinion.

Interstate Pollution Problems

As is evident from the earlier tabulation of pollution points, interstate pollution problems requiring im-

[10] From *Report on Water Pollution by the Special Advisory Committee on Water Pollution*, National Resources Committee, 1935.

mediate attention are located on the Chattahoochee River where it forms the boundary between Georgia and Alabama. On the Holston river, flowing from Virginia into Tennessee, and on French Broad and Big Pigeon rivers that flow from North Carolina into Tennessee, there are similar problems likely to become acute with further industrialization. The following tabulation shows interstate streams where State compacts may be necessary:

Rivers	*States*
New, Dan, Roanoke, Chowan	North Carolina-Virginia.
Pee Dee, Catawba, Broad	South Carolina-North Carolina.
Savannah	South Carolina-Georgia.
Suwannee, Ochlockonee, Apalachicola, Choctawhatchee, Escambia.	Florida-Georgia-Alabama.
Chattahoochee, Tallapoosa, Coosa	Alabama-Georgia.
Tombigbee, Noxubee	Mississippi-Alabama.
Tennesee	Tennessee-Alabama.
Ocoee	Tennessee-Georgia.
Hiwassee, Little Tennessee, Big Pigeon, French Broad.	Tennessee-North Carolina.
Powell, Clinch, Holston	Tennessee-Virginia.
Cumberland	Tennessee-Kentucky

Cases involving the pollution of interstate streams call for an even greater degree of enlightenment in attitude and action on the part of the States. Regulation in such cases must be applied under standards adopted by interstate agreement or compact, for the Federal Government does not claim the right to enforce upon local communities the sanitary standards they must follow. Interstate pollution problems may, therefore, well be of special concern to a regional planning commission. In other areas, a first approach to such interstate agreements has been through the initiative of the State sanitary engineers, and their arrival at an informal agreement on sanitary standards to be striven for in interstate areas. A new approach is currently being tried in the New England States, with much promise of success. Following a recommendation that grew out of a study by the Central New England Drainage Basin Committee (a group of representatives of the State and Federal agencies that are concerned with New England water problems), the Regional Chairman of the National Resources Planning Board requested the Governors of the respective States to appoint State representatives for the purpose of jointly classifying New England rivers and their tributaries according to the standards of purity to be maintained. Appointments have been made for all but one of the New England States. The findings of these technical experts are expected to form the basis for a formal interstate compact.

In the Southeastern States, laws governing the pollution of streams, both intrastate and interstate, are either inadequate or nonexistent. No compacts concerning pollution are in existence between any of the States in this region. Bills have been introduced in the Congress that would permit cooperation between the Federal Government and the States in the preparation of plans and the financing of pollution abatement projects, and that would authorize State agreements or compacts, none of which have been enacted as yet.

The Problems of Reservoir Silting

Dams for the storage of water for whatever purpose are not fully useful without appropriate measures to prevent the soils of tributary areas from washing down into basins behind the impounding structures. Failure to institute such measures has resulted in seriously wasteful expenditures by units of State, local, and Federal Governments, and by private interests. The inclusion of such measures in future projects will insure a high degree of efficiency and considerable savings in operation.

In the sections on resources and agriculture earlier in this report it was pointed out that excessive erosion has occurred on most of the upland soils in the Southeast and particularly on the Piedmont soils, due largely to the steep slopes, high rates of rainfall and the erosive nature of the soil. River and community water, supply dams in these general areas are, therefore, particularly vulnerable to losses from the filling in of reservoirs with the topsoil of the surrounding country-side. A survey made by the Soil Conservation Service of the water supply reservoir for the city of High Point, N. C., before soil conservation measures were instituted and after the reservoir had been in operation 6½ years, revealed that the average annual accumulation of sediment was equivalent to 0.93 tons or 36.81 cubic feet of soil per acre from the tributary drainage area.

Water is discharged from bare eroded lands much faster than from lands with a vegetative cover or cultivated lands with deep soil, well protected through terraces or other means. This rapid discharge prevents the replenishment of ground water supplies and causes more frequent flooding of bottom lands.

Drainage canals have been constructed in many of the small river valleys in the hills. Frequently these channels erode at the upper end and fill at the lower end where the velocity decreases because of flatter land slopes and sometimes to inadequate outlets. In many instances, branch streams discharge into the drainage canals large quantities of sand and silt which are washed down and fill the drainage canals, first at the lower end and later progressively on upstream. In some instances, the lower reaches of such drainage canals have been filled several feet above the original

surface of the ground, and the water has spread to the sides and flows down over the valley floor.

The heavy load of silt that is carried by many of the streams in this region is a menace to storage reservoirs. The rate of filling depends to a large extent on the silt content of the water, but it also depends on the ratio between the drainage watershed and the capacity of the reservoir. In other areas where the ratio is large and the soil easily eroded, reservoirs have been known to fill up completely within a few years. Where the ratio is small, it might be many years before the capacity of a reservoir is seriously reduced.

Preliminary surveys of the Soil Conservation Service indicate that the storage capacity of the Lloyd Shoals reservoir on the Ocmulgee River, which in 1910 had a capacity of 112,538 acre feet, had by 1937 been reduced 12.4 percent by silting. At this rate of filling the life of the reservoir would be about 180 years.

Some years ago estimates of the life of possible reservoirs on the Pee Dee River system were made, based on records of silting in the Southeastern States. The results are given in the following tabulation: [11]

Project	River	Drainage area (square miles)	Reservoir capacity (acre-feet)	Life in years
Wilkesboro, N. C	Yadkin	480	630,000	10,000
Styers, N. C	do	1,870	406,600	1,670
Junction, N. C	do	2,430	270,235	860
Cooleemee, N. C	South Yadkin	534	612,180	8,830
Loves Ford, N. C	Rocky	675	51,000	580
Crumps Ford, N. C	do	1,370	450,280	2,530
Greater Blewett, N. C	Pee Dee	6,860	354,010	400

The wide differences in estimates of life of reservoirs, due in part to differences in size of the drainage acreas, is depicted in the following table of measurements of the rate of silting in water supply reservoirs for 11 cities in North Carolina.[12] The smaller areas may have a larger percentage of land in cultivation, while the shorter distance to the reservoirs would provide less time and opportunity for the silt to deposit before reaching the reservoirs.

Town	Source of supply	Drainage area	Original storage capacity			Estimated life of reservoir
			Total	Depleted annually		
		Square miles	*Acre-feet*	*Acre-feet*	*Percent*	*Years*
Albemarle	Long Creek	33.0	1,070	10.2	0.95	105
Burlington	Stoney Creek	105.2	1,488	16.4	1.10	91
Chapel Hill	Morgan Creek	30.6	1,915	21.8	1.14	88
Concord	Coldwater Creek	4.7	1,201	7.8	.65	154
Durham	Flat River	167.5	12,671	45.1	.36	277
Greensboro	Reedy Fork	74.1	2,870	23.4	.82	122
High Point	Deep River	62.8	4,354	33.7	.77	130
Lexington	Leonard's Creek	20.0	614	10.2	1.66	60
Monroe	Richardson Creek	50.5	821	15.2	1.85	54
Raleigh	Swift and Walnut Creeks.	69.0	1,595	7.7	.48	208
Winston-Salem	Brushy Fork and Salem Creeks.	33.7	3,399	16.7	.49	204
Total			31,998	208.2		

[11] H. Doc. 68, 73d Cong., 1st sess.

[12] *Effect of Soil Erosion on Costs of Public Water Supply in the North Carolina Piedmont*, Soil Conservation Service, U. S. Department of Agriculture.

In studies of 22 water, supply reservoirs in North Carolina made by the Soil Conservation Service, it was estimated that the annual silting damage was $32,000 prior to the inauguration of soil conservation measures.[13] The studies made at High Point, N. C., estimated that approximately one-fourth of the sedimentation in reservoirs in that locality can be prevented by the installation of a practical soil conservation measure on the drainage areas. It appears that a yearly saving of $8,000 can result to these cities from reasonable soil erosion measures on the affected watersheds.

In addition to the damage to reservoirs by silting, large sums are spent on water purification processes in order to remove soil particles. It is estimated that the 22 North Carolina cities involved could save $95,000 annually in the reduction of turbidity through the adoption of erosion control measures.

The Problem of Malaria Control

One of the grave regional health problems is malaria, which is peculiarly related to the region's water resources.[14] Along with other areas of the globe where warm climate is combined with heavy precipitation, the Southeast has suffered seriously from the disease in the Coastal Plains of the Atlantic and the Gulf, in the alluvial valleys of the Mississippi River and its tributaries and to a lesser degree in the swampy valleys, flats, and along streams with obstructed channels in the upland areas.

The treatment of malaria is a problem in medicine. The prevention of malaria is a problem of sanitary engineering and one which has engaged the skill of water planning engineers since the building of the Panama Canal.

Malaria can be transmitted to persons only by one type of mosquito, the Anopheles, which breeds in small, clear, quiet pools or along the margins of reservoirs, lakes and ponds. It will not breed in direct sunshine or large open bodies of water. The most effective means of eliminating malarial mosquitoes is the removal of the water in which they breed. On account of the flat topography of much of the region's coastal areas, not all breeding places can be eradicated by this means. Moreover, it is not always economically feasible to drain lands for mosquito control alone, and even where drainage is economically justifiable, it is difficult to drain the land so thoroughly that all breeding areas are removed. Even adequate farm drainage will not entirely eliminate the malarial mosquito because, invariably, during the rainy season, there are pools of

[13] *Ibid.*

[14] See chapter, "Development of Public Health", herein.

water in outlet streams or large drainage canals, and usually in ponds on the land, and in borrowpits along the highways, in which it can breed.

In and near larger urban areas it is usually economically feasible for the drainage canals to be suitably paved, surface ponds filled or drained, and lands affected by seep water under-drained with tile. Where this is done and the works properly maintained and supervised, malaria can be eliminated or closely controlled.

Where drainage is not economically feasible or where water must be kept impounded in reservoirs, lakes or ponds, measures must be directed toward the destruction of the larvae. All vegetation should be kept away from the margins of such bodies of water. Frequent fluctuation of the stage of water will destroy the larvae. Where such control measures cannot be taken, the margins of large bodies of water can be treated with Paris Green and small ponds with oil.

One of the most successful efforts at malarial control of this general type has been made under the leadership of Dr. E. L. Bishop of the Tennessee Valley Authority in cooperation with State Departments of Health in reservoir areas behind TVA dams. This work represents a model for observation by officials in areas where similar measures are indicated.

In areas where satisfactory drainage cannot be obtained, or where larvicide control is not practical, the best method of malaria control is mosquito proofing.

Measures for the control of the malarial mosquito and reduction of the incidence of malaria have been undertaken in all the States in this region. In some counties, intensive studies and expensive measures have been initiated, with gratifying results. Some of this work has been done adequately and effectively under the supervision of State Boards of Health. Much has been undertaken with only partial effectiveness through the use of relief labor without adequate plans or supervision.

Drainage of Agricultural Lands

In efforts to reclaim lowlands for agricultural purposes and to protect them for agricultural uses, the Southeast has witnessed considerable activity in the construction of drainage facilities. There are many drainage districts in successful operation over the region. The Yazoo Delta to the West and the Florida citrus and truck lands to the South are the most highly developed. There are 304 drainage districts in Mississippi alone. A considerable number have been established in western Tennessee and eastern North Carolina but very few in Alabama, Georgia, and South Carolina.

Some of these drainage districts are in poor physical condition owing to silting and improper maintenance or even complete lack of maintenance. As in the case of water artificially impounded behind dams, silting may be caused by the discharge into the channel of sand and silt from tributary streams. In the case of drainage canals it may also result from erosion of the channels where the velocity is high with resulting deposits where the velocity is reduced, and from improper outlets.

It is of the utmost importance to keep sand and silt from reaching drainage channels. The adoption of soil conservation measures such as terracing, strip cropping and the growth in hilly areas of cover crops which will offer protection to farm lands and thus prevent erosion, together with the control of erosion on the drainage area by planting vines, trees and other types of natural growth adapted to the locality along the borders of the channels, will assist greatly in preventing the accumulation of silt in drainage channels. Improper outlets can be remedied by proper connection with an outlet stream or by extending the drainage channel a sufficient distance beyond the land to be benefited to allow for sedimentation. It is imperative that all drainage channels, both in hilly and flat land, be properly maintained. Tree growth alone can reduce their capacity as much as 75 percent and, except where needed to prevent bank erosion, must be cut and removed every year. All drift should be removed promptly and in any event before silting begins. Shoals and silt bars should be removed before the capacities of the channels are seriously impaired.

Many drainage districts have been constructed with inadequate capacity and have not reclaimed the land as anticipated. Most failures of this kind have been the result of efforts to drain river valleys by means of ordinary drainage ditches where only major flood control methods are adequate. It is seldom economically feasible to reclaim the narrow valleys of large streams by channelization. The headwaters and tributaries can, as a rule, be economically drained by that method. Where the drainage area of streams located in hilly regions is not greater than 50 square miles, drainage is usually economically justifiable. Where the drainage area is as much as 75 square miles, it is sometimes justifiable. Where the drainage area is over 100 square miles, drainage for agricultural purposes can seldom be economically justified.

In some instances, drainage districts were constructed in undeveloped regions for promotional or colonization purposes. Many districts of this type have been abandoned because of the failure of the promoters to place the land in cultivation so the drainage taxes could be earned.

Many of the drainage districts of the Southeast require extensive rehabilitation work before they can

function properly. All districts require systematic, continuous maintenance to avoid excessive deterioration.

There are large areas of undeveloped fertile land, especially in the eastern part of this region. Furthermore, there are many valleys on the headwaters and tributaries of the streams throughout the region that can be profitably drained. In some of these areas flood control must precede drainage, but in many locations flood control is not necessary and satisfactory drainage for agricultural purposes can be secured by means of organized drainage districts.

RECOMMENDATIONS

The development of water resources to service post-war industrial and general economic development in the Southeast offers a major opportunity to raise low regional income levels and to sustain them without dependence upon external subsidies. The wide distribution of proposed water facilities projects in each State and throughout the region, the advanced status of those projects with respect to economic and engineering analysis and planning, the generally high labor requirements for their construction, and the stimulation to heavy-goods industries of the East and Middle West which their material requirements generate, makes them peculiarly feasible and readily adaptable to the problem of absorbing immediate post-war unemployment.

1. The Drainage Basin Committees of the seven Southeastern States should be given every assistance, through the State and Federal agencies represented on them, to undertake immediately the preparation of drainage basin plans for use in post-war readjustment. These over-all plans should set forth the location of water problems and undeveloped resources, and the best use which can be made of these resources within the drainage basins in which they occur. Many factors outside the field of water resources will necessarily affect these determinations, *viz.*, the relationship within the basins between existing population and its land resources, the implication of secular and wartime trends in agricultural production to population displacement, new industrial opportunities, etc., considerations upon which constituent Federal and State agencies represented on the Basin Committees and the staff of the Southeastern Regional Planning Commission are at work and can advise. The drainage basin plans should picture the highest possible use of each basin's water resources and the best possible integration of the navigation, flood control, and power of multiple-purpose projects required for its implementation.

2. The findings of the United States Army Corps of Engineers with respect to facilities needed to improve Southeastern harbors and navigable streams (see discussion of Navigation in this section of the report, above) appear to constitute a conservative appraisal of the engineering works required to bring the region's navigation plant up to such standards of adequacy as will enable it to service normal commercial and industrial needs. Many of these projects may be required before the end of the war. Those which remain should be utilized to the fullest extent for the absorption of immediate post-war unemployment and such further analysis and over-all planning as any of them require should be expedited during the war period.

3. The findings of the United States Army Engineers with respect to flood control projects have revealed numerous instances where general or local flood control facilities are economically feasible (see discussion of Flood Control in this section of the report, above). The construction of such facilities may be added to those in (2) immediately above, as offering substantial unemployment relief during the post-war transition and should be fully utilized in that connection. Such further analysis and over-all planning as any of them require should be expedited during the war period.

4. Analysis of the hydroelectric power potentialities of the streams of the region by the United States Army Engineers has revealed the economic feasibility of numerous proposed hydroelectric power projects. Subsequent analysis by the staff of the Atlanta field office of the National Resources Planning Board and the staff of the Federal Power Commission has revealed additional projects which appear to be feasible in light of more recent economic and technological changes. The most feasible of these projects are given number one preliminary ratings in the treatment of hydroelectric power above. These projects should also be added to those in (2) and (3) above for full utilization in immediate post-war adjustment.

5. In the planning of navigation, flood control, and power projects, the principle of multiple-purpose development, combining two or all of the three major purposes has demonstrated itself as being especially sound economically. No project in these fields should be undertaken without correct, complete and final exploration of the economic feasibility of building the related structures so as to make it serve more than a single purpose, the volume of added benefits being likely in many instances to be far in excess of additional investment requirements.

6. Actual construction of economically feasible future

hydroelectric developments whether for power alone or in combination with flood control or navigation should begin only after the collaborative preparation by local, State, and Federal agencies of detailed and elastic plans for accommodating economic and physical displacement of reservoir area population, for the resettlement of farm families necessitated by diminished land area and resources, for the readjustment of State and local governmental services and finance, and for the translation of the newly developed power, navigation, and land resources into agricultural and industrial wealth and income.

7. Since modern industrial technology portends a much more extensive use of electricity for energy, heat, and chemical processes, and since the Southeast possesses numerous potential hydroelectric power sites, power projects previously deemed economically infeasible or currently given low priorities by power specialists should be reviewed periodically so that the region may make the fullest possible use of its resources in industrial and commercial development.

8. The building of urban business, industrial, residential and public developments on the flood plains of rivers known to be subject to periodic overflow has resulted in grave losses of life and property and of expensive private and public investments in facilities to protect such developments. Consequently, it is especially urged that Federal and State agencies responsible for the proper use and development of streams give every aid and stimulus to urban governmental officials in the introduction of appropriate flood-plain zoning measures to the end that these flood-vulnerable areas may be confined to uses which can sustain overflow without loss of persons and property.

9. Critical industrial and community expansion problems related to decreasing water supplies and stream pollution cannot be solved without wide popular understanding of those problems and support for preventive, regulatory, and remedial measures. It is therefore recommended that city and county governmental departments charged with the administration of water supplies, together with State Departments of Health and other State agencies concerned, formulate and execute programs designed to inform the public generally, and industrial, commercial, and other community leaders particularly, of the gravity of local water-supply problems and the nature, purposes, and necessity of the measures designed for their solution.

10. As soon as possible all State Departments of Health in collaboration with Drainage Basin Committees should sponsor careful scientific surveys for each representative local area to determine the rate at which ground-water supplies can be used without dangerous depletion.

11. The State Health Departments of the Atlantic and Gulf Coastal States should undertake special scientific surveys as soon as possible to determine the levels at which the ground water of those areas must be maintained to prevent the intrusion of salt water.

12. In localities where increasing urban population or new industrial consumers create increased demands upon local water supplies, special surveys should be initiated to locate additional supplies and determine the most practical method of storing excess water for use during low flow periods.

13. Urban areas in close proximity to proposed navigation, flood-control, hydroelectric, or multiple-purpose dams should sponsor special surveys of the present and probable future adequacy of their water supplies and take steps to supplement them where necessary and possible from the proposed reservoirs.

14. Upon the basis of surveys recommended in (10) and (11) above, equitable legislation to regulate the use of ground- and surface-water supplies, to eliminate the wastage of ground water from flowing wells and other sources and excessive lowering of ground-water levels is recommended as imperative in each of the seven Southeastern States, to safeguard existing industrial and urban growth and to insure that current water-supply deficiencies do not develop into barriers to further urban and industrial growth.

15. Comprehensive sewerage systems with efficient sewage treatment methods or other facilities of sewage disposal approved and recommended by the State Boards of Health should be required in all urban areas, regardless of size; all dwellings accessible to sewerage systems in all urban areas should connect therewith.

16. In rural areas, particularly in inhabited watersheds from which community water supplies are drawn, each dwelling unit should be provided with sanitary means approved by State Health Departments, as a minimum sanitation requirement.

17. Sewage from most, if not all, sewerage systems should be treated before being released into the carrying stream.

18. In connection with the preparation of revised Drainage Basin Plans under the leadership of the Water Resources Section of the National Resources Planning Board, the six Drainage Basin Committees of the Southeastern States should initiate the classification of the streams of their respective basins with reference to their highest uses and establish for each the permissible degree of pollution.

19. Where interstate pollution problems exist, the Sanitary Engineering Divisions of the States involved should explore the necessity and possibilities of abatements and the possible use of interstate compacts therefor.

20. Adequate State legislation to control pollution and facilitate interstate compacts should be carefully formulated by State Sanitary Engineering Divisions and Drainage Basin Committees, and presented for enactment into law.

21. The staffs of Sanitary Engineering Divisions of State Departments of Health should be augmented with additional technical personnel to conduct the research, basic to the formulation of adequate regulation of water supplies and pollution abatement legislation, and to make subsequent regulatory activity effective.

22. The soil conservation and forestry programs of the United States Department of Agriculture and State agricultural agencies are important not only to sound agricultural development but also to the protection of investments of private interests and of State, local, and Federal governments in the construction of dams for community water supply, flood control, navigation, and power and in the construction of drainage canals for the reclamation and conservation of land; the continuation and extension of the programs is essential to protect existing investments and effect savings in the operation of future water facilities.

23. Many drainage districts of the region, particularly where they are highly concentrated in the western areas, require extensive physical and financial rehabilitation before they can operate effectively. Federal and State agricultural agencies should make special efforts to assist in this rehabilitation work with a particular view to the establishment of adequate maintenance to forestall repetitions of physical deterioration and financial disorganization.

24. The areas of acute malaria incidence in each State as well as the appropriate control measures are familiar to the Sanitary Engineering Divisions of the State Health Departments of the Southeast and the United States Public Health Service, which provide advisory services to communities desiring to undertake malaria control programs; these advisory services should be augmented to the point at which programs will be adequate to eliminate malaria from all areas of acute incidence.

25. The Public Health Education services of State Departments of Health should be equipped to disseminate broadly the basic facts about malaria prevention and treatment in such popular forms as films and pictorial presentations in the interest of a better and more general public understanding of the problem.

26. Communities should not sponsor malaria control except under the guidance of qualified technicians.

27. Since the economic future of the Southeast will bring increased urbanization, many existing communities will expand in size and new communities will develop; planning for each of these expansions and new developments must include careful provision for adequate malaria control.

28. The economic future of the Southeast will undoubtedly witness the construction of numerous dams along the streams of the region for flood control, navigation and hydroelectric power. Without provision for malaria control, the water impounded behind such developments may constitute a serious health menace. The advance planning for the developments should make provision to:

(*a*) Cut all stumps, tree growth and other vegetation at an elevation one foot or more below the minimum low water and clear the shore line of the reservoir, from minimum low water to a line located 25 feet or more, measured horizontally, beyond the normal highwater line, of all stumps, trees and other vegetation that would tend to collect drift and flotage or other substances which protect the larvae of mosquitoes capable of conveying malaria.

(*b*) Provide satisfactory drainage for all depressions that might retain ponded water as the reservoir level recedes.

(*c*) Remove all floating debris during the mosquito breeding season that might produce mosquitoes within one mile of human habitation, and apply adequate control measures.

(*d*) Take proper measures to prevent the growth of cattails and other water vegetation that offer protection for mosquito larvae from their fish enemies.

Similarly, where water is impounded for such purposes as water supply, means should be provided for controlling the fluctuations of the reservoir water level by gates, flashboards and other devices. Private power and water-supply reservoirs constructed should conform to malarial control standards of State Boards of Health and the United States Public Health Service.

29. State Boards of Health should be given authority by law, wherever such is now lacking, to:

(*a*) Require proper construction and cleaning of reservoirs to give maximum protection against the breeding of malaria-bearing mosquitoes.

(*b*) Require drainage of all construction borrow-pits and excavations along highways, railroads, and construction projects generally.

BUSINESS AND INDUSTRIAL DEVELOPMENT[1]

The purpose of this chapter is to describe and analyze those traits and trends of the business and industrial development of the Southeast which afford a guide to regional planning, whether by private or public agencies. The principal emphasis is upon manufacturing, because of its creative relationship to other forms of enterprise and because an expansion in desirable and appropriate types of manufacturing is an important requirement of progress for the Southeast. Some reference is made to agriculture, but only in its relation to manufacturing and other forms of business and industry.

The period selected for this treatment is primarily that which immediately preceded the present national emergency. It is true that, since midyear of 1940, many and drastic changes have come to the Southeastern economy. Some of these changes have been reviewed in Part I of this report, and it is the continuing obligation of regional research to keep pace with current developments and try to discern their implications. But not until the war is over can it actually be known which of these innovations are lasting, and which are only temporary dislocations. Meanwhile, the underlying form of the regional economy, developed under circumstances of peace, remains as the fundamental pattern to which, with some modifications, the region may be expected to return with the advent of peace.

This long-term pattern is of the utmost significance to post-war planning. It will be seen that, as a characteristic over a period of years, the structure of Southeastern business and industry has presented an unbalanced relationship to the basic resources of the region, some of the potentialities having been overemphasized, others partly developed or neglected. This lack of balance serves to direct and define the task of long-range planning, which has as its ultimate aim full usage of the region's resources for the economic betterment of its people. Planning also has the more immediate purpose of selecting those war-time industrial developments which are economically adapted to the Southeast and seeking their conservation for the uses of peace. However, neither the long-range nor the immediate task of post-war planning can be intelligently performed except upon the basis of needs and desirability indicated by the fundamental pre-war pattern.

The general *Census* of 1940 and the *Census of Manufacturing* of 1939 reveal the economy as it was on the very threshold of war. These are the major sources of this study, and from them have been selected regional and national data for purposes of comparison and contrast. Such comparison poses a fundamental question: Should the Southeast seek to become so highly industrialized, should the nonagricultural aspect of its economy be so stimulated, as to equal the standards presented by some other region or by the Nation as a whole? Obviously, there is no norm, other than its own potentialities, by which the Southeast may be judged. While its resources are doubtless greater and more rounded than its present economic development, the economic objectives of the Southeast are not to be conceived as duplicating the industrial achievement of the Great Lakes sector, the commercial life of New York, or national ratios in general. Rather, the goal of planning for the Southeast must be the most appropriate utilization of its particular resources for the full employment of its people and the maximum contribution to the national economy. Comparisons with the national averages, accordingly, are presented herein to suggest what may be accomplished in the Southeast within its natural economic limits, rather than as criteria of the region's failure or success.

The Agriculture-to-Industry Trend

From the time of their first settlement in the seventeenth century, the Southeastern States have been strongly characterized by the dominance of agriculture, especially cotton agriculture. The business and industrial life of this region for two centuries was almost wholly a supplement to the "plantation economy." Prior to 1910 this region moved from agriculture toward business and industry less rapidly than did the Nation as a whole. In 1790, about 10 percent of the gainfully employed people of the United States were occupied in

TABLE I.—*Number of gainfully employed, number in nonagricultural employment, and percentage ratios, United States and Southeastern region, 1900–1940* [1]

	Total gainfully employed		Total in nonagricultural employment		Percentage in nonagricultural employment	
	United States	Region	United States	Region	United States	Region
1900	29,073,233	4,489,676	19,723,311	2,219,436	67.8	49.4
1910	38,167,336	5,891,394	25,508,133	2,073,571	66.8	35.2
1920	41,614,248	5,544,300	30,661,090	2,497,300	73.7	45.0
1930	48,829,920	6,419,391	38,357,922	3,516,654	78.6	54.8
1940	45,166,083	6,223,525	36,690,651	3,942,440	81.2	63.3

[1] Source: Census of United States.

[1] Prepared by Ernest Jerome Hopkins, senior research technician, with contributions and special studies by Dr. Albert S. Keister, consultant, and Joseph B. Hosmer, senior research technician, Atlanta Field Office, National Resources Planning Board.

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business and industry; the proportion had grown to more than 80 percent by 1940. By comparison, the Southeast still had 36.7 percent of its gainful employment in agriculture and only 63.3 percent in business and industry by 1940.

How the relationship between these two principal categories of employment has altered since the beginning of the present century is shown in table I.

Size of the Business-Industry Structure

The agriculture-to-industry trend, common to the Nation, has been for three decades past considerably more rapid in the Southeastern region than in the United States as a whole. But the national norm was not attained. While the shift from virtually a 2-to-1 preponderance of agricultural employment in 1910 to more than a 3-to-2 preponderance of business and industrial employment in 1940 may be termed phenomenal, the size of the business-industry structure of the region remained small in relation to the size of its population. Measured by the number of business establishments, by the number of wage earners, and by the amount of wage payments in nonagricultural employment, the size of the regional business-industry structure, in relation to national totals, is shown in table II–A, B, C.

From table II–A it appears that the United States, as a whole, in 1938 had 16.2 units of business and industry to the average unit of 1,000 people. But the Southeast was below that national ratio and operated to depress it. As a region, it had in 1938 only 9.5 units of business or industry for each 1,000 persons, approximately three-fifths of the national average. The table also shows a considerable variation among the States of this region. The business population exceeded the national ratio only in Florida, where many service and trade establishments have sprung up in connection with the tourist industry. Tennessee, Georgia, and the two Carolinas, which combine agriculture with manufacturing, had about the average number of business establishments per unit of population for this region; Alabama, which also combines agriculture with manufacturing, and Mississippi, which is preponderantly agricultural, had less than the regional average.

Measured by the percentage of its total population which was employed in business-industry establishments in March 1938, this region ranked about the same as when measured by its business population, with about three-fifths of the national ratio. Whereas, for the Nation, more than 17 out of 100 persons worked in business or industry, the Southeast thus employed less than 11.5 persons per 100. The ratio of employment was highest in Florida, as before, while the other States were well below the national norm.

Measured by wages paid in the first quarter of 1938, the Southeast ranked even lower than when measured by number of establishments or by employment. The wages disbursed by business and industry in the seven

TABLE II–A.—*Business-industry structure, Southeastern region and United States, in March 1938, by the measure of the number of business establishments* [1]

State	Estimated population [2]	Number of employing establishments	Number of employing establishments for each 1,000 of population
Alabama	2,798,079	21,421	7.7
Florida	1,789,028	29,249	16.3
Georgia	3,082,950	31,048	10.1
Mississippi	2,151,673	12,659	5.9
North Carolina	3,494,417	31,005	8.9
South Carolina	1,876,581	16,475	8.8
Tennessee	2,859,466	29,237	10.2
Region	18,052,194	171,094	9.5
United States	129,673,099	2,103,387	16.2
Region percent of United States	13.9	8.1	

[1] Source: Tabulations of the Bureau of Old Age and Survivors Insurance, Social Security Board, for the last date or last pay-roll date of March 1938. The major exclusions are agricultural and domestic employment. There are no size-exclusions.
[2] Midyear Estimates of Population, U. S. Bureau of the Census.

TABLE II–B.—*Business-industry structure, Southeast and United States, in March 1938, by the measure of the employment of wage earners* [1]

State	Estimated population [2]	Number of wage earners, business and industry	Number as percent of population
Alabama	2,798,079	252,829	9.0
Florida	1,789,028	290,392	16.2
Georgia	3,082,950	384,798	12.5
Mississippi	2,151,673	124,443	5.8
North Carolina	3,494,417	450,621	12.9
South Carolina	1,876,581	215,281	11.5
Tennessee	2,859,466	317,932	11.1
Region	18,052,194	2,036,296	11.3
United States	129,673,099	22,373,417	17.3
Region percent of United States	13.9	9.1	

[1] Source: As in table II–A.
[2] Source: Sama as in table II–A.

TABLE II–C.—*Business-industry structure, Southeast region and United States, by the measure of wages paid in first 3 months of 1938* [1]

State	Estimated population [2]	Wages paid	Wages paid per capita
Alabama	2,798,079	$49,349,717	$17.64
Florida	1,789,028	47,564,456	26.59
Georgia	3,082,950	68,796,311	22.32
Mississippi	2,151,673	16,003,590	7.44
North Carolina	3,494,417	83,142,159	23.79
South Carolina	1,876,581	34,685,072	18.48
Tennessee	2,859,466	61,336,470	21.45
Region	18,052,194	360,877,775	19.99
United States	129,673,099	6,375,932,411	49.17
Region percentage of United States	13.9	5.4	

[1] Source: As in table II–A.
[2] Source: As in table II–A.

States were less than two-fifths of the national per capita payments. In Florida, which again led the region, the wages paid were slightly more than half the national average per capita; in the four median States they were less than half, and in Mississippi only one-seventh of the national average.

Summing up the three measures, it appears that in a fairly typical year shortly prior to the defense era the Southeast had about three-fifths the national ratio in the number of business units and number of wage earners and paid these workers about two-fifths of the national per capita average in wages. To have attained the general levels of the United States in these respects, business and industry in the Southeast would have required an additional 121,348 establishments, an additional employment of 1,068,648 persons, and the payment of an additional $575,840,165 in quarterly wages. This was at the end of four decades of progress at a rate considerably more rapid than the national rate.

Why the Business-Industry Structure Is Relatively Small

The business and industrial development of the Southeast region has been hampered by the predominance of an agricultural economy which has not been sufficiently profitable to support a larger number of trade, service and manufacturing establishments. Also, the low level of wages paid in business and industry has restricted the region's purchasing power. An outstanding factor, which contributes to virtually every problem in the region, is the abnormally large portion of the population living on the margin of subsistence and incapable of supporting the markets of the region or of the Nation. Included in this bloc are agricultural sharecroppers and tenants, individual farmers subsisting on small and unproductive tracts of land, and a large number of domestic servants. The size of the region's business structure has been limited by the number of people whose incomes are largely in the form of commodities rather than cash.

In accounting for the limited development of the business-industry structure, certain broad features of the region's topography and history should be considered.

Influence of Topography Upon the Business Structure

The uneven distribution of business and industry, by States, has been indicated in table II. This is partly to be explained by the fact that the more northerly part of the region, especially in North Carolina and Georgia, was first to feel the effects of manufacturing developments emanating from the North. The case of Florida differs in that much of its business life is based upon the servicing of the tourist trade. The regional topography has exercised a fundamental influence in determining the extent and types of business and industry, and especially in the distribution of these by zones.

This region is divided into four major and three minor topographical areas. Along the southern Atlantic and eastern Gulf coasts lies the Coastal Plain, including all of Florida and extending well inland in five other States. Its principal natural resources are agriculture and forestry, the towns being agricultural centers primarily. The seaports constitute an exception; these are centers of business, commerce, diversified manufacturing, and other services. They include Wilmington, N. C.; Charleston, S. C.; Savannah, Ga.; Jacksonville, Miami, Tampa, and Pensacola, Fla.; Mobile, Ala.; and Pascagoula, Miss. (Fig. 2).

The inland boundary of the Coastal Plain is known as the Fall Line, which derives its name from the rapids or falls of the rivers flowing from the more elevated Piedmont area down to the Coastal Plain. At or near the Fall Line, several towns, the early centers of water-power manufacturing, constitute an industrial and trade zone today. These include Raleigh, N. C.; Columbia, S. C.; Augusta, Macon, and Columbus, Ga.; Jackson, Miss.; and Montgomery, Ala.

Above the Fall Line, and extending to the Appalachian Mountains, is the Piedmont, in general a rolling country, in which a large portion of the region's industry and some of its largest cities are located, both because water power is present and because the trend of the ridges established major trade routes by highway and rail to the north. (Highway 29, which is virtually the line of the Southern Railway, has been called the "Gold Road of the South.") Durham and Charlotte, N. C.; Greenville, S. C.; and Atlanta, Ga., are among the Piedmont cities.

The fourth major topographical area is the southern termination of the Appalachian Mountains, which includes eastern Tennessee, northwestern Georgia, and the northern third of Alabama. Having coal and iron deposits as well as abundant water power, the Appalachian area has developed mining and "heavy" industry, and is sometimes referred to as the "Southern Ruhr." Its cities include Chattanooga and Knoxville, Tenn.; Rome, Ga.; Gadsden, Huntsville, Anniston, and Birmingham, Ala.

Two minor topographical areas include the extreme southern portion of the Ohio River system, in which Nashville, Tenn., is located, and the so-called "upper delta" of the Mississippi, having the river ports of Memphis, Tenn., and Vicksburg and Natchez, Miss. The upper delta is primarily a cotton area. Topography has limited much of these areas to agriculture and lumbering, and has caused the earlier centers of

industry and business to locate in a scattered pattern. Such locations tend to persist even when initial causes, such as transportation advantages or power supply, are overcome.

Historical Background

Certain historical considerations help to explain the size-deficiency of the business and industrial structure of the Southeast, as well as its unbalanced relationship to regional resources. In two important periods of the past, when economic development was proceeding with rapidity in other areas, this region lagged behind. The conditioning effects of these periods have not been entirely overcome today.

During and after the "Industrial Revolution", while the Northern States were developing the techniques of an industrial economy, the South was occupied in bringing its "plantation economy" to its fullest flowering. This economy, rooted in the region's colonial beginnings, was based upon large land-holdings, good soil and climate, the labor of the Negro, and world markets for cotton, tobacco, indigo, rice, and sugar. Agricultural products were exported in bulk, while manufactured products, including most consumer goods, were imported in return. As long as these basic conditions obtained, the plantation economy probably paid to the Southern landowners as high a return upon their investment as could have been derived in any other way. But progressive soil depletion, the rise of competing areas, and the disadvantage of selling in an unprotected market while buying in a protected one, gradually brought requirements of change. It became apparent that the plantation economy had created an environment in many respects unfavorable to industrial growth. It had not developed the wage system. It had not provided a regional reservoir of free skilled labor or attracted industrial immigrants from Europe or the North. The political sentiment of agrarianism favored free trade and low tariffs, while its social standards accorded to the planter a prestige that was denied to the industrialist, the promoter, or the financier.

The small amount of manufacturing which existed in the South in the first half of the 19th century was sufficient only to indicate the region's potentialities and to foreshadow much that has since occurred. The larger plantations had shops and mills in which foodstuffs, textiles, leather, and metals were processed for plantation consumption. Commerce and finance grew up around the marketing of crops. In the Piedmont and Highland regions, in which the plantation economy was never completely dominant, a considerable lumber industry early arose, leading to furniture-making in the towns and shipbuilding at some seaports. A section of the Piedmont also was benefited by an immigration of skilled workers from Pennsylvania. Commercial textile manufacture existed along the Fall Line before the War of 1812 and was afterward expanded by both Southern and British capital. There were charcoal furnaces for iron production in Alabama as early as 1817. While such developments were generally small and their locations scattered, in 1860 the South as a whole, with about 40 percent of the national population, had about 20 percent of the Nation's total number of manufacturing establishments.

The second and more marked period of lag was from 1860 to about 1880. This period, including the War Between the States, Reconstruction, and the Panic of 1873, was one of virtual industrial paralysis in the Southeast. The region returned to its plantation economy in a modified and less successful form, having neither the capital, the technical leadership, nor the labor skills to develop manufacturing. In contrast, in the North and West the post-bellum years prior to 1873 were a period of unprecedented development in industry, railroading, and finance. National focal centers of economic life were becoming established, none of them in the Southeast.

The need of nonagricultural development, however, was clearly recognized in the South, and in the decade of the 1880's there were signs of industrial renaissance. An increase in manufacturing and mining occurred in this region, although, until after the turn of the century, the national development continued at a more rapid rate. Industries based upon the two most obvious resources, cotton and timber, led the way out of the regional depression. In iron and steel and in variation of industry the development was slower. The *Census of Manufacturing* of 1899 (Table IV) reveals about the same number of manufacturing establishments in the seven Southeastern States as that of 1939, although their average employment was small; the *Census* of 1909 showed that the Southeast's share in the Nation's manufacturing was beginning to increase, and up to the beginning of the present decade the regional gains continued at a rate more rapid than the national.

However, the region's business and industrial structure in 1939 was not yet commensurate in size with the region's percentage of the national population. Certain historical checks continued to operate; these may be enumerated. The supply of fluid capital within the region had not become abundant, although it was not entirely lacking. Competition from the national centers, and the vested character of established trade connections, continued to create hazards to the purely regional industrial growth. There was, accordingly, a

drain of Southeastern savings into the national rather than the regional type of investment. Southeastern labor, though initially agrarian, had proved itself adaptable to industry, but technical leadership and promotion were still to some extent lacking. The traditional system of producing raw materials and exporting them in exchange for finished goods had moved over into manufacturing, which still was limited in large part to the preliminary stages of processing. Much of the more recent industrial development of the Southeast had been both financed and directed from outside the region, through the establishment of branch plants of national manufacturing concerns. Thus, many of the so-called "colonial" traits of the Southeastern business and industrial structure still remained as consequences, not yet entirely overcome, of the region's past periods of economic lag.

Were the basic resources of the Southeast insufficient in themselves for a fully developed and well rounded business and industrial life, the size-deficiency and unbalanced character of the structure might be regarded as intrinsic. But such is not the case. The Southeastern States have a rounded complement of resources, and the region is capable of a considerably higher degree of economic self-sufficiency than its business and industrial development had reflected up to the beginning of the present war-production period. This consideration serves to identify the major task of post-war planning, which is that of adapting the region's structure of business and industry to a full use of its resource potentials.

Distribution of Occupations

Nonagricultural employment is broken down by the *Census* into 12 internal classifications. How the gainful employment of this region was distributed among the various occupational groups (with some consolidation of minor groups) in the *Census* week of March 24–30, 1940, is shown in table III.

The service group, in all States of the region, is dominated by the unusually large number of personal-service employees. In Georgia these numbered in 1940 nearly 143,000, in North Carolina 115,000, in Tennessee 98,000, and in Alabama 95,000. For the most part these are domestic-service workers, an unusually large employment of Negroes in domestic service being characteristic of the cities and towns in all parts of the region. In eastern Tennessee, the western tip of North Carolina, and to a greater extent in Florida, the employment in the personal-service category is based upon the tourist trade, which is attracted by the mountains, forests, lakes, and beaches of the region, and amounts to a major industry. This employment is primarily white. Since the defense period began, the commercial-service income has been greatly increased in connection with the large number of war training camps, shipyards, and construction projects.

As to trade, the *Census of Business* of 1939 reveals that in 1939 there were in the region 183,976 stores, of which 174,406 were independent stores and 9,570 were units of chain stores. The total sales amounted to $3,529,595,000, which was 8.4 percent of the Nation's total sales (compared to about 14 percent of the national population). The region's trade structure was characterized by an excess of small and very small stores; in the seven States were 11.7 percent of all the Nation's stores doing a gross business in 1939 of less than $10,000. These included 111,028 of the independent stores and 1,044 of the chain-store units. These 112,072 very small stores shared 10.1 percent

TABLE III.—*Distribution of gainfully employed, nonagricultural, by major occupation groups, Southeastern region and United States, 1940*[1]

State	Total nonagricultural employment	Manufacturing	Trade[2]	Service[3]	Public utilities and finance[4]	Professional service	Construction	Government	Mining	Industry not reported
Alabama	537,267	155,419	89,895	106,955	51,154	43,377	28,797	21,406	30,172	10,092
Percent	100.0	28.9	16.7	19.9	9.5	8.1	5.4	4.0	5.6	1.9
Florida	554,040	80,138	139,166	139,068	66,187	44,353	43,761	28,407	2,612	10,348
Percent	100.0	14.5	25.1	25.1	11.9	8.0	7.9	5.1	0.5	1.9
Georgia	718,329	205,229	129,679	161,113	71,549	54,986	41,694	37,919	4,078	12,082
Percent	100.0	28.6	18.0	22.4	10.0	7.6	5.8	5.3	0.6	1.7
Mississippi	305,208	66,765	69,652	74,908	27,679	30,902	24,151	12,279	1,917	6,955
Percent	100.0	21.9	19.6	24.5	9.1	10.1	7.9	4.0	0.6	2.3
North Carolina	799,640	325,539	126,712	134,521	56,539	63,684	46,971	26,995	2,914	15,765
Percent	100.0	40.7	15.8	16.8	7.1	8.0	5.9	3.4	0.4	1.9
South Carolina	399,271	150,923	61,904	79,642	27,238	32,816	22,363	17,297	1,331	5,757
Percent	100.0	37.8	15.5	20.0	6.8	8.2	5.6	4.3	0.3	1.5
Tennessee	628,685	172,416	125,635	115,563	69,582	54,096	42,790	23,244	14,397	10,962
Percent	100.0	27.4	20.0	18.4	11.1	8.6	6.8	3.7	2.2	1.8
Region	3,942,440	1,156,429	732,643	811,770	369,928	324,214	250,527	167,547	57,421	71,961
Percent	100.0	29.3	18.6	20.6	9.4	8.2	6.3	4.3	1.5	1.8
United States	36,690,651	10,572,842	7,538,768	5,268,913	4,580,950	3,317,581	2,056,274	1,753 487	913,000	688,836
Percent	100.0	28.8	20.5	14.4	12.5	9.0	5.6	4.8	2.5	1.9
Region percent of United States	10.7	10.9	9.7	15.4	8.1	9.8	12.2	9.6	6.3	10.5

[1] Source: Census of 1940.
[2] Wholesale and retail.
[3] Business and repair services, personal service, and amusement and recreational services.
[4] Transportation, communication, other public utilities, finance, insurance, and real estate.

of the total of regional sales. They were largely manned by proprietors and their families. At the other extreme were certain large mail-order and department-store establishments, those in the largest size-group being, however, so few that the *Census* did not give their data by States because doing so would disclose information on individual concerns.

The region did a correspondingly small proportion of the Nation's work on public contracts, business and industrial construction, and other medium and large-unit jobs. The *Census of Business* of 1939 reveals that the region had in that year 12,521 construction concerns, or 5.9 percent of the Nation's total. The value of work performed was $362,094,000, which was 8.0 percent of the value of construction work in the Nation. In the number of employees, the region ranked higher, with 120,682 wage earners or 11.2 percent of the Nation's construction workers (this corresponds closely with the region's percentage of workers in manufacturing). The small-unit construction work, which the *Census* describes as jobs of less than $25,000 in value of work performed, was below the proportions stated above, this region having but 5.8 percent of the Nation's construction concerns, 7.7 percent of the workers, and 5.5 percent of the value of work performed. That the number of construction employees was high in relation to the value of work performed indicates an emphasis upon hand and tool labor rather than upon the mechanized types of construction.

Development of Manufacturing

During the era of the "plantation economy" there were many factories, typically small, scattered over this region as an adjunct to that economy. Such were wagon factories, smithies, grist mills, oil mills, cotton gins, hand processing of tobacco, and various handicrafts in the working of metal, leather and wood.

Late in the nineteenth century, a southward migration of skilled artisans from Pennsylvania through the Valley of Virginia stimulated a subarea manufacturing development in North Carolina and Tennessee. A general impetus toward manufacturing arose from the needs of an increasing population for a wider range of employment opportunity than agriculture alone afforded. An industrial movement, starting about 1880, inspired concentration upon manufacturing as the outstanding need of the Southeastern economy. It was natural that the first emphasis should be placed upon the manufacturing of cotton textiles and secondly upon tobacco products. While the raw materials for these industries are not perishable, and their manufacture could and did take place at points far distant from the producing fields, it was inevitable that these manufactures should be regarded by the region as the logical culmination of its agricultural system. This point of view was encouraged by the pioneering textile plants, driven by water power, which had been built by both British and American capital at a few locations.

TABLE IV.—*Development of manufacturing in the Southeast region and in the United States, 1899–1939* [1]

Census year	Number of establishments	Number of wage earners (average for year)	Wages, total for year	Value of product	Value added by manufacture
	Southeast				
			Thousands	*Thousands*	*Thousands*
1899	15,534	363,627	$91,605	$465,903	$219,260
1909	24,341	552,952	186,806	1,012,379	456,686
1919	26,086	694,851	589,536	3,478,556	1,448,384
1929	19,461	842,290	659,198	4,134,461	1,970,848
1939	15,424	902,759	660,989	4,215,480	1,758,319
	United States				
1899	205,237	4,509,684	$1,895,514	$11,103,725	$4,662,288
1909	265,509	6,273,239	3,210,276	20,067,674	8,191,892
1919	210,426	8,431,157	9,673,136	60,053,895	23,770,147
1929	206,811	8,380,536	10,909,815	68,178,340	30,737,200
1939	184,230	7,866,567	9,089,941	66,843,025	24,682,918
	Southeast, percentage of United States				
1899	7.8	8.1	4.8	4.2	4.7
1909	9.2	8.8	5.8	5.0	5.6
1919	12.4	8.2	6.1	5.8	6.1
1929	9.4	10.1	6.1	6.1	6.4
1939	8.4	11.4	7.3	7.4	7.1

[1] Source: Census of Manufactures.

Considerable progress was made in the founding of new small plants during the 1880's. It continued, despite national economic depression, into the middle 1890's, when the plants had become so numerous that the *Census of Manufactures* of 1899 reported a total of 15,534 manufacturing establishments for the Southeast compared to 15,424 in 1939. By 1919 the region had about five manufacturing plants to every three that had existed in 1899, or the largest number in its history (table IV). Then the period of consolidation and concentration into large operations, which had marked the Nation's manufacturing development after 1900, saw the number of plants progressively reduced in the Southeast. In the Nation, this trend toward greater mechanical efficiency was accompanied by a reduction in the number of employees from 1919 onward; while the value of products and the values added by manufacture continued to rise until the depression of the 1930's. But in the Southeast, despite the reduction in the number of plants, the employment as well as the production of values continued to increase. The figures for 1939 for this region were even slightly above those for 1929, except in value added, although between the two Census dates the region had suffered from the national slump.

TABLE V.—*Manufacturing in the Southeast region by States, and in the United States, 1939* [1]

State	Number of establishments	Number of wage earners (average for year) [2]	Wages, total for year	Value of products	Value added by manufacture
Alabama	2,052	116,800	$92,017,970	$574,670,690	$247,383,611
Florida	2,083	52,732	37,883,204	241,538,534	118,015,863
Georgia	3,150	157,804	108,083,478	677,402,657	283,316,138
Mississippi	1,294	46,359	27,437,088	174,937,294	73,462,419
South Carolina	1,331	126,983	86,616,242	397,512,863	169,846,619
North Carolina	3,225	270,207	199,289,500	1,421,329,578	545,952,289
Tennessee	2,289	131,874	109,661,769	728,087,825	320,341,902
Region	15,424	902,759	660,989,251	4,215,479,551	1,758,318,841
United States	184,230	7,866,567	9,089,940,916	56,843,024,800	24,682,918,119
Region, percentage of United States	8.37	11.48	7.27	7.42	7.12

[1] Source: Census of Manufactures, 1939.
[2] The region had an approximate 14 percent of the Nation's population in 1939.

From table IV it is evident that the Southeast, over the 40-year period, has progressed faster than the Nation in respect to the number of wage earners employed in manufacturing, in the wages paid, in the value of products, and in the value added by manufacture. Lateral comparison between the columns of table IV also suggests certain other characteristics of the regional manufacturing, such as its high employment of workers in relation to values produced, which will be dealt with more fully below.

Inequality of Manufacturing by States

It is apparent from table V that the regional manufacturing industries are unevenly distributed by States. (See also Fig. 24.) This is developed in table VI, which gives two measures of manufacturing on the basis of the total State populations. It may be remarked that the inequalities in the distribution of manufacturing do not in all cases follow the variations in the total structure of business and industry, previously shown in table II. The widest disparity is that of Florida, which ranked first in this region in 1938 in the extent of business and industry as a whole, but is shown in table VI to have ranked sixth in manufacturing.

TABLE VI.—*Manufacturing employment and value of products related to total population: by States, Southeastern region and United States, 1939* [1]

State	Estimated population [2]	Wage-earners (average for year)	Percent of population	Value of products	Value per capita of population
				Thousands	
Alabama	2,816,000	116,800	4.1	$574,671	$204
Florida	1,845,000	52,732	2.9	241,539	131
Georgia	3,104,000	157,804	5.1	677,403	218
Mississippi	2,169,000	46,359	2.1	174,937	81
North Carolina	3,534,000	270,207	7.6	1,421,330	402
South Carolina	1,893,000	126,983	6.7	397,513	210
Tennessee	2,889,000	131,874	4.6	728,088	252
Region	18,250,000	902,759	4.9	4,215,480	231
United States	130,877,763	7,866,567	6.0	56,843,025	434

[1] Source: Census of Manufactures, 1939.
[2] Source: Division of Vital Statistics, Bureau of the Census.

In 1939 North Carolina, the region's leading manufacturing State, had a higher degree of manufacturing employment per capita than the national average; but its workers and plants produced only $402 in value per capita, as against a national average of $434. This is ascribable to the prevailing types of industry; the cigarette-making industry somewhat elevates the State average, but the textile, lumber and other low-value industries depress it. South Carolina, in which the latter two industries predominated in 1939, also exceeded the national level of manufacturing employment per capita, but its product value was less than half the national per capita average—only $210. Tennessee, which has considerable "heavy" industry as well as the less value-creating types, was below the regional average in manufacturing employment, but above it in value of product. Georgia and Alabama afford an interesting contrast. Manufacturing employment in Alabama is only about 80 percent of that in Georgia in relation to the total population, but the value of Alabama's products per capita is nearly 95 percent of that of Georgia's, which reveals the influence of Alabama's larger proportion of "heavy" industry and smaller share in the textile industry. Florida and Mississippi are far below the regional average in both respects. (See also Fig. 25.)

Creation of Value Added by Manufacture

The primary influence in the production of added values is the type of manufacturing itself. Types vary in the amount of new values added to the original materials, which is the central purpose of manufacturing. The *Census* computes "value added by manufacture" by subtracting from the end-price at which the products are valued the costs of materials, supplies, fuel, electricity and contract work. Obviously, this computation is affected by price circumstances, especially by the prevalence of the administered-price situation within certain major industries. Also it is affected, as between different industries, by the degree of plant mechanization. The prevailing industries of the Southeast, which sell few or none of their products in an administered-price market, and which are mechanized only to a moderate degree, would be expected to show a lower value added per worker than would industries characterized by price-controlling organization or by notable mass-production methods. But the value-added figure for Southeastern manufacturing is so much lower than national averages as not to be entirely accounted for by such considerations. Table V shows that this region, having 11.5 percent of the Nation's workers in manufacturing, produced in 1939 only 7.1 percent of the value added by manufacture.

These two figures define the central weakness of

Southeastern manufacturing as it has existed in the past, and define the major challenge to and objective of regional planning for manufacturing in the future. The importance of increasing the value-producing quality of the region's manufacturing industries is clear when it is recognized that low wages and low profits generally accompany low value added, and that both wages and profits in manufacturing are the nourishers of general expansion in other business lines. The processing of material resources into higher forms, which creates wealth and income, is essential to the well-being of other types of economic activity. Manufacturing, as the consumer of the raw materials of agriculture and mining, and as the employer of transportation, trade, construction, and other services, contributes to the support and expansion of all these activities, and provides income for the purchase of its own products.

The analysis of manufacturing in this region, accordingly, bears fundamentally upon the twin questions of why the value-added coefficient has been low, and how it can be improved. Since encouragement of monopolies is generally undesirable, the task of planning for a higher value-added percentage should embody a search for higher-value-producing, competitive types of industry. All the States share this need. (See Figs. 26–27.)

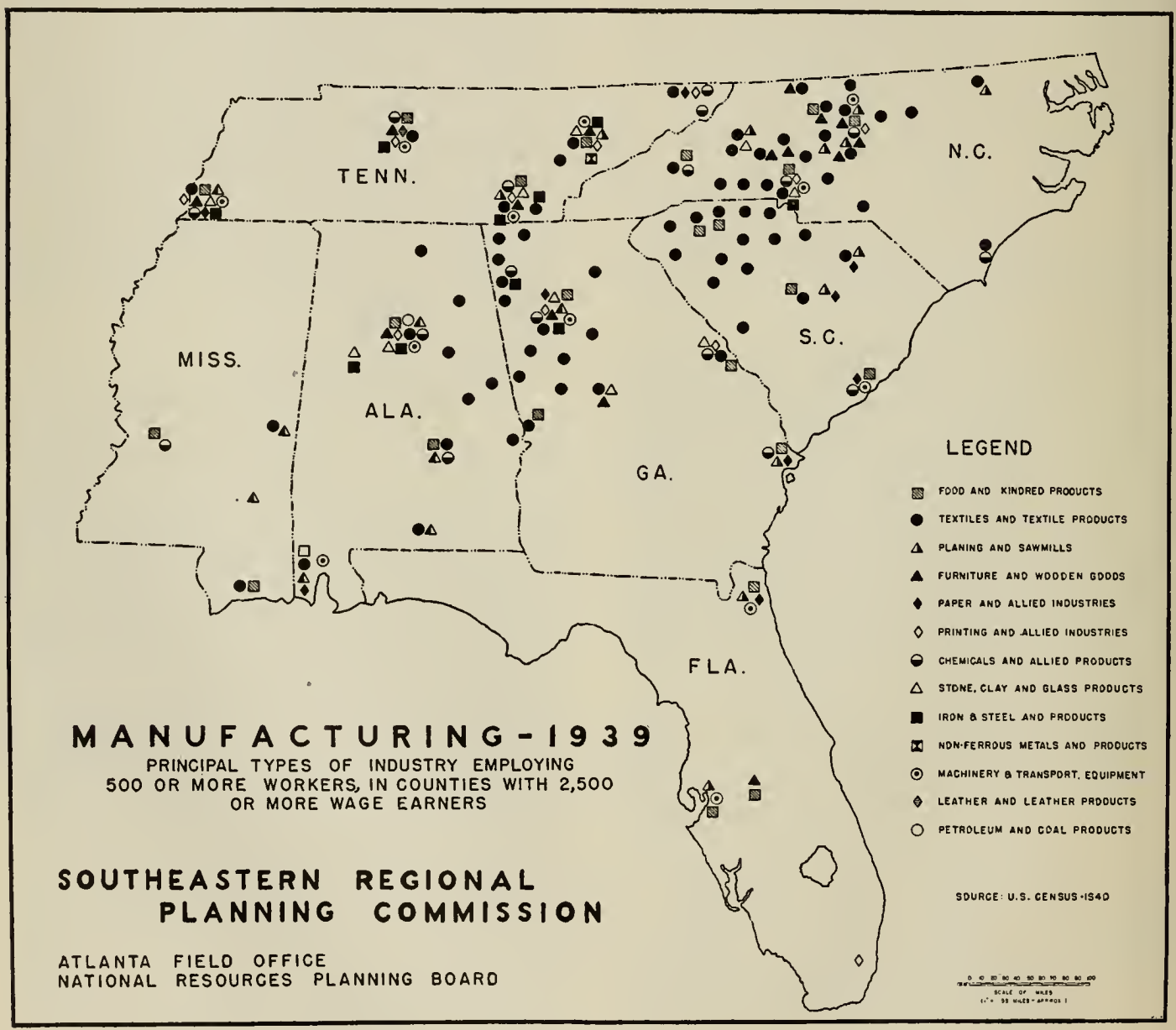

Figure 24

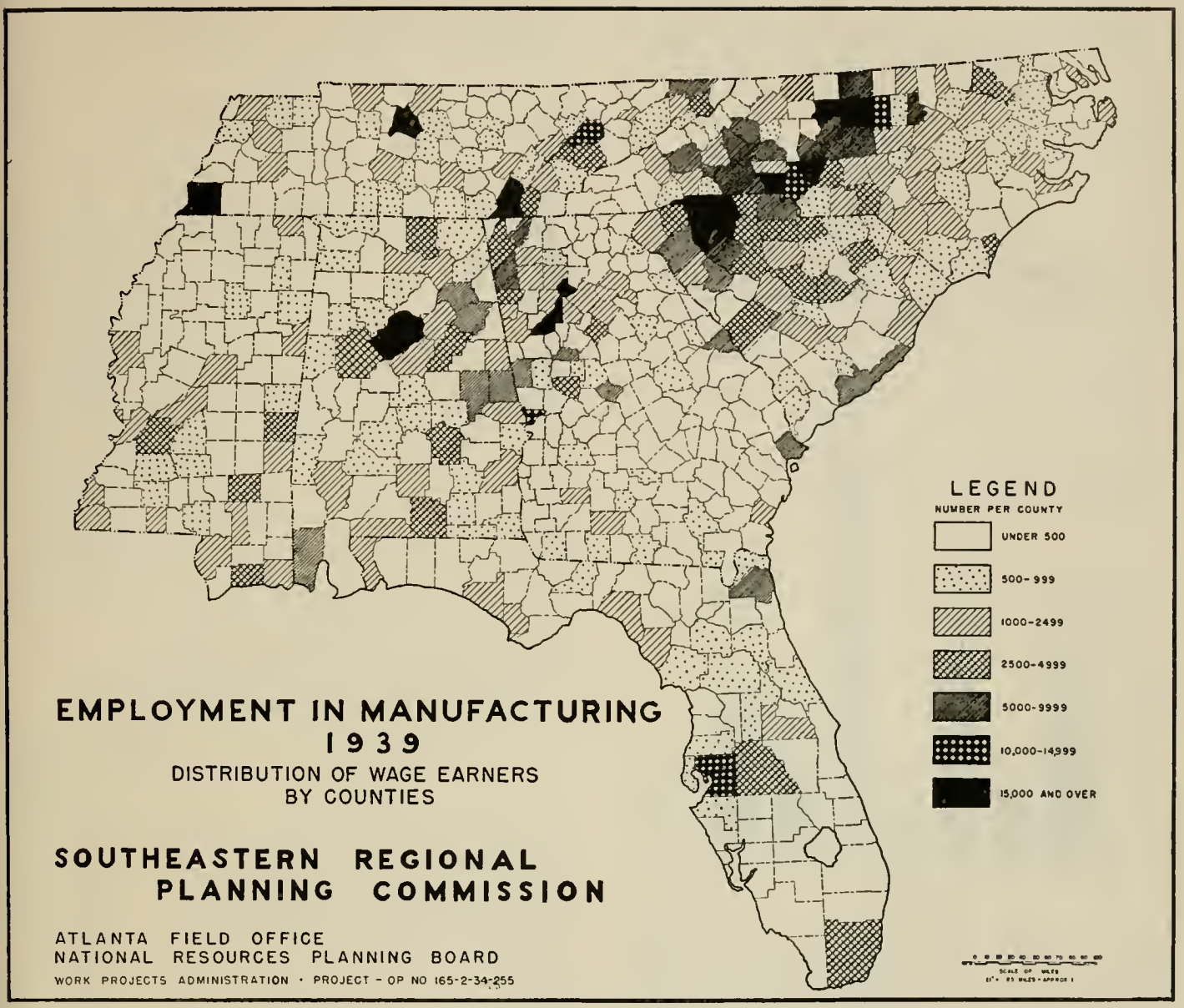

Figure 25

Table VII indicates how much lower the value added per wage earner has been in the Southeast than in the Nation, over the 10-year period 1929–39. The region is shown to be gaining upon the Nation in this respect, but the Nation has shown, over the decade, a decline.

Prevailing Types of Manufacture

Table VII also shows that, while both value added and annual average wages in the Southeast are low, the ratio of wages to value added runs consistently higher for the region than for the United States as a whole. This suggests that the low regional wage-level in manufacturing, with its depressing effect upon other lines of business and industry, may be fundamentally related to the types of manufacturing themselves.

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The growth of manufacturing in the Southeast has not been balanced. From the outset, textile manufacturing has been greatly emphasized, principally in the production of "gray goods" (fabrics woven or knitted which have not been bleached, dyed, or finished). Wood products have ranked second, including the paper industry, which is the largest recent development in the region. The metal industries, food-processing and consumer-goods industries have not been developed in keeping with either the regional resources or the regional demand.

Nevertheless, the *Census of Manufactures* for 1939 discloses a rather impressive variety of industries represented to some extent in the region (table

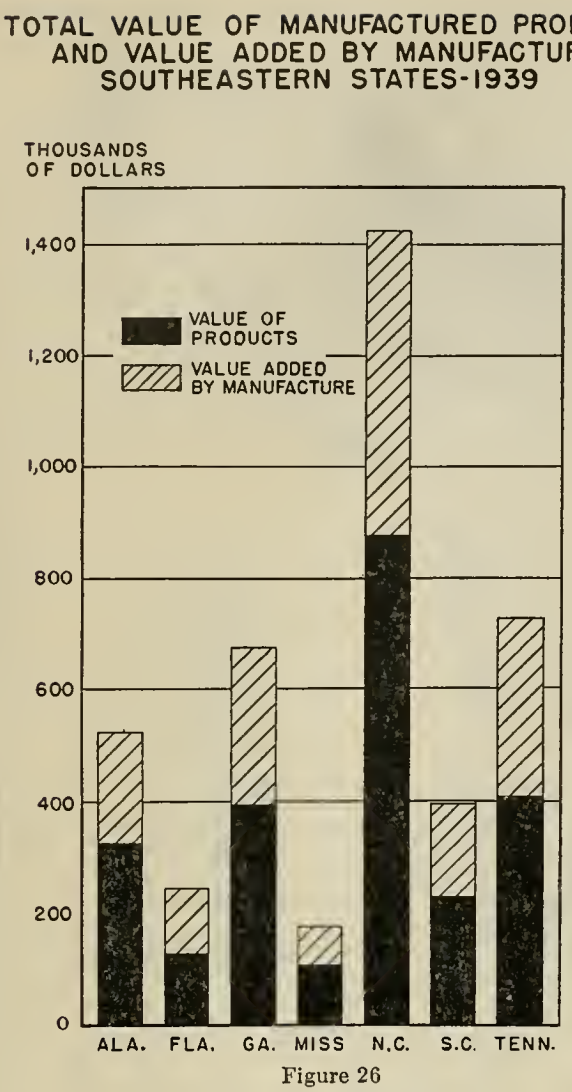

Figure 26

VIII–A and VIII–B). In those industries having as many as 1,000 wage earners in the 7 States on annual averages, 78 types of manufacturing are shown. In those industries averaging less than 1,000 wage earners for the region, there are 106 additional types.

Table VIII–A is not entirely complete, even for some of the major industries. The *Census*, in order to avoid disclosure of data on individual establishments, gives only the number of such establishments. Thus, there are several plywood and wallboard mills, at least two pulp mills, four shipyards, certain railroad shops, and other fairly large establishments which are not included in the figures of table VIII–A. The paper industry especially suffers from these exclusions, inasmuch as it is a relatively new industry, represented in some States by only one or two large plants.

Table VIII–B is of significance partly in emphasizing the unbalanced character of the textile and other major

TABLE VII.—*Number of workers (average for year), wages paid per average worker, and value added per average worker, in manufacturing, Southeastern region and United States, 1929–39* [1]

Year	Number of wage earners (average for year)	Wages paid per average wage earner	Value added per average wage earner	Ratio, wages to value added
	Southeastern region			
1929	839,891	$784	$2,074	37.8
1931	642,143	675	1,829	36.9
1933	685,850	559	1,447	38.6
1935	769,866	635	1,511	42.0
1937	901,434	732	1,813	40.4
1939	902,759	732	1,948	37.6
	United States			
1929	8,380,536	1,301	3,668	35.5
1931	6,163,144	1,085	3,018	36.0
1933	5,787,611	869	2,420	35.9
1935	7,203,794	1,015	2,575	39.4
1937	8,569,231	1,180	2,938	40.2
1939	7,886,567	1,153	3,130	36.8
	Region, percent of United States			
1929	10.0	5.7	5.5	
1931	10.4	6.5	6.3	
1933	11.9	7.8	7.1	
1935	10.7	6.7	6.3	
1937	10.5	6.5	7.0	
1939	11.4	7.3	7.1	

[1] Source: Census of Manufactures.

TABLE VIII–A.—*Manufacturing establishments with 1,000 or more wage earners, and numbers of wage earners, reported by Census of Manufactures, 1939: Southeastern region*

Industry	Number of establishments	Number of wage earners (average for year)
Cotton, broad woven goods	419	224,399
Sawmills, veneer mills	2,817	82,421
Cotton yarn	285	62,359
Hosiery, seamless	322	42,415
Hosiery, full-fashioned	127	29,664
Rayon broad woven goods	46	26,944
Household furniture, excepting upholstered furniture	175	19,797
Planing mills not operated in conjunction with sawmills	638	15,529
Cigarettes	10	15,375
Steel works and rolling mills	9	13,496
Bread and other bakery products	681	12,786
Dyeing and finishing of cotton, silk rayon textiles	44	12,392
Work clothing, except shirts	72	11,227
Cigars	48	9,850
Knitted underwear	28	9,621
Fertilizers	404	9,216
Rayon and allied products	4	9,190
Castiron pipe and fittings	27	9,027
Wooden boxes, except cigar boxes	72	8,299
Shirts, men's and boys' (except work shirts)	32	7,964
Cottonseed oil, cake, meal	202	7,717
Woolen and worsted manufactures	20	7,706
Work shirts	36	7,546
Curtains, draperies, and bedspreads	62	7,357
Canned and dried fruits and vegetables	122	6,764
Newspapers: publishing and printing	664	6,694
Footwear (except rubber)	19	6,284
Stoves, ranges, heaters	38	6,258
Brick and hollow tile	123	5,537
Paper and paperboard mills	26	5,403
Household furniture, upholstered	66	4,956
Meat packing, wholesale	90	4,763
Printing (job)	561	4,142
Pulp mills	21	4,043
Monuments, cut stone products	127	3,910
Beverages, nonalcoholic	768	3,835
Shipbuilding and ship repair	31	3,436
Suits, men's and boys', other than work clothing	16	3,392
Wood products (not otherwise classified)	105	3,390
Canned fish and mollusks	37	3,357
Wood preserving	40	3,334
Motor vehicle bodies, parts, accessories	29	3,156
Chemicals, not otherwise classified	27	3,133
Cordage and twine	22	2,992
Candy, confectionery	94	2,782

TABLE VIII–A.—*Manufacturing establishments with 1,000 or more wage earners, and numbers of wage earners, reported by Census of Manufactures, 1939; Southeastern region*—Continued

Industry	Number of establishments	Number of wage earners (average for year)
Plywood mills	31	2,626
Logging camps not operating sawmills	146	2,607
Mattresses and bedsprings	107	2,374
Tobacco (chewing and smoking and snuff)	14	2,314
Gray iron and semisteel castings	93	2,258
Paperboard containers and boxes	58	2,248
Ice, manufactured	861	2,238
Fabricated structural steel and ornamental metal work	60	2,235
Blast furnace products	7	2,224
Baskets for fruits and vegetables	30	2,176
Flour and other grain mill products	314	2,077
Textile bags (not made in textile mills)	18	2,063
Cotton thread	8	2,047
Trousers (semidress) and washable suits	9	2,038
Wood naval stores	20	2,005
Concrete products	159	1,998
Machine-shop products, not otherwise classified	80	1,870
Cement	14	1,766
Power boilers and associated products	19	1,648
Knitted cloth	11	1,464
Oven coke, and coke-oven byproducts	6	1,451
Ice cream and ice	241	1,353
Leather: tanned, cured and finished	11	1,313
Prepared feeds for animals and fowls	94	1,526
Lime	33	1,268
Caskets, coffins and other mortician goods	81	1,265
Tires and inner tubes	3	1,248
Machine-shop repairs	176	1,154
Minerals and earths, ground or treated	43	1,143
Paper bags (except those made in paper mills)	3	1,101
Textile machinery	40	1,070
Oils and fats, edible, not otherwise classified	10	1,027
Drugs and medicines, including drug-grinding	63	1,008
Total, industries with 1,000 or more wage earners	12,469	812,051

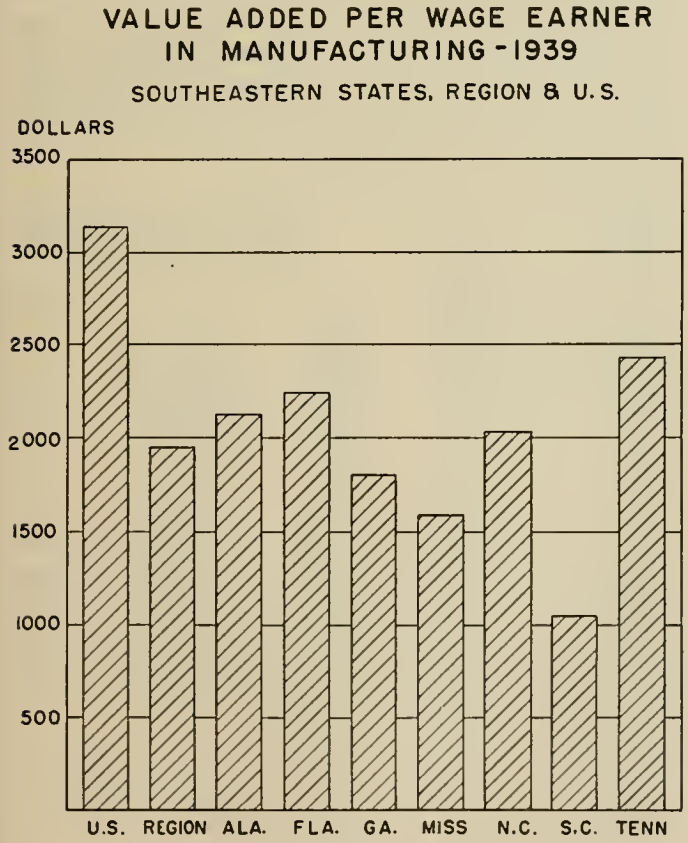

Figure 27

groups, and partly in suggesting pathways of future development. While the numerical employment may seem in many cases insignificant, the list is of importance in demonstrating that the industry can exist in the region, and in suggesting lines of possible expansion. Small industries, furthermore, are frequently the mainstay of employment in those communities where they operate.

The unnamed miscellaneous industries, and others so few in number that their data are not disclosed by the *Census*, include the manufacturing of wallboard and wall plaster, gypsum products, stamped and pressed metal products, bolts and nuts, saws and other hand tools, cutlery, explosives, sewer pipe, roofing tile, fiber containers and tubes, flat glass, brushes, adhesives, soybean oil, chewing gum, corn syrup and sugar, cane sugar, and a small development in coated and glazed paper. In spite of the heavy preponderance of textile and lumber manufacturing, the Southeast has a considerable variety of "infant industries," though their total employment in 1939 was small.

TABLE VIII–B.—*Manufacturing establishments with less than 1,000 wage earners, and numbers of wage earners reported by Census of Manufactures, 1939: Southeastern region*

Industry	Number of establishments	Number of wage earners (average for year)
Agricultural machinery, except tractors	24	990
Vitreous enamel products, including kitchen utensils	4	982
Gum naval stores	751	966
Bookbinding and related industries	28	858
Biscuits, crackers, pretzels	12	856
Sausages, prepared meats and other meat products	93	826
Cooperage	41	789
Tanning materials, etc	26	777
House dresses, uniforms, aprons	9	775
Saddlery, harness, whips	17	770
Food preparations, not otherwise classified	52	750
Refrigerators and equipment, air-conditioning units	11	706
Cigar boxes	5	688
Silk throwing and spinning	3	684
Clay refractories, including refractory cement (clay)	7	672
Work gloves and mittens	6	665
Rayon yarn and thread	3	664
Processed waste and recovered wool fibers	11	654
Periodicals; publishing and printing	31	573
Carpets, rugs and mats	3	556
Hardwood distillation and charcoal manufacture	3	530
Tin cans and other tinware	11	514
Converted paper products not otherwise classified	7	507
Office furniture	3	507
Knitted outerwear, except gloves	3	485
Jute goods, except felt	3	470
Sheet metal work not specially classified	46	465
Condensed and evaporated milk	14	464
Millinery	5	463
Brooms	37	456
Signs, advertising displays and novelties	60	452
Paints, varnishes, lacquers	45	451
Pickled fruits and vegetables, sauces, etc	10	443
Mirrors, etc., from purchased glass	17	414
Asbestos products, except steam packing	3	401
Insecticides, fungicides, and related products	55	396
Partitions, shelving, cabinet work	23	388
Creamery butter	66	387
Cotton narrow fabrics	10	379
Pencils and crayons	5	375
Flour (blended and prepared from purchased flour)	32	367
Sporting and athletic goods	10	365
Malt liquors	10	348
Books, printing (without publishing)	18	319
Machinery, special-industry, not otherwise classified	5	306
Lithographing	16	298
Fabric products, miscellaneous, not otherwise classified	12	297
Batting, padding, and wadding	12	292
Oils, vegetable and animal, not otherwise classified	11	291
Flavoring extracts and syrups	26	288
Wire work, not otherwise classified	12	282

TABLE VIII–B.—*Manufacturing establishments with less than 1,000 wage earners, and numbers of wage earners reported by Census of Manufactures, 193: Southeastern region*—Continued.

Industry	Number of establishments	Number of wage earners (average for year)
Perfumes, cosmetics, other toilet preparations	24	270
Photoengraving (not done in printing plants)	41	267
House furnishings, except curtains and draperies	7	242
Dresses, women's and misses'	11	237
Paving blocks and mixtures	10	225
Compressed and liquefied gases, not pit or natural	29	210
Silk, yard and thread	3	204
Cheese	42	200
Transportation equipment, not otherwise classified	6	196
Canvas products, except bags	24	180
Boat building and boat repairing	20	177
Industrial machinery, not otherwise classified	25	174
Poultry, dressing and packing, wholesale	11	165
Salad dressings	8	164
Woodworking machinery	7	158
Coal-tar products, crude and intermediate	3	155
Oils, fish and other marine; cake meal	12	151
Batteries, storage and primary	13	144
Nonferrous metal foundries, except aluminum	8	142
Machinery, construction and similar (except mining and oilfield)	4	137
Clay products, except pottery	5	128
Jams, jellies, and fruit butters	18	115
Textile products, fabricated, miscellaneous	3	107
Excelsior	7	103
Typesetting, machine and hand	14	102
Venetian blinds	7	99
Rattan and willow ware, except furniture and baskets	4	78
Neckwear, men's	3	76
Roofing, asphalt shingles	3	74
Vinegar and cider	7	67
Robes, lounging garments, dressing gowns	3	60
Leather belting and packing leather, industrial	10	58
Periodicals, publishing without printing	64	53
Cleansing and polishing preparations	14	52
Slaughtering, custom	3	52
Clothing, women's and misses', not otherwise classified	5	51
Soap and glycerine	9	48
Electroplating	6	48
Pumping equipment and air compressors	3	47
Electrotyping and stereotyping	4	41
Coats, suits, skirts	4	39
Feather, plumes, artificial flowers	4	36
Rubber products, not otherwise classified	4	31
Electric appliances	4	27
Underwear and knitted fabrics, women's and children's	3	26
Macaroni, spaghetti, vermicelli	3	15
Pottery products, not otherwise classified	5	13
Hand stamps, stencils, brands	3	13
Surgical appliances and equipment	5	12
Window shades	3	11
Engraving, steel and copper plate	3	10
Trailers, automobile	3	7
Newspapers: publishing without printing	27	5
Books: publishing without printing	12	2
Total	2,310	33,105

Tables VIII–A and VIII–B, distributed according to major industry groups, are summarized as follows:

Group	Number of wage earners	Percent of region's total wage earners
Textile industries	475,216	52.64
Other fiber industries	7,338	.81
Wood industries	167,640	18.57
Metal industries	49,939	5.53
Food and feed industries	48,166	5.36
Tobacco industries	27,539	3.05
Chemical and oil industries	21,459	2.38
Earthen industries	17,716	1.96
Leather industries	8,425	.93
Miscellaneous	21,718	2.39
Undisclosed	57,603	6.38
Total	902,759	100.00

Semifinished Production

In addition to the obvious imbalance, tables VIII–A and B reveal a heavy emphasis upon the processing of raw materials through the first or early stages of manufacturing only, which is a clue to the low-value-added situation. This is especially true of many or most of the larger industries, which dominate the totals. The spinning and weaving of cotton, wood processing by logging camps, sawmills, and planing mills, the gray-iron and cast-iron processes, furnace and coke manufacture (8 of the 78 industries in the first list), employ 425,171 out of the total of 902,759 manufacturing workers in the region, or 47.1 percent. These industries, and many others in the list, are characterized generally by the following economic traits:

1. The value added by manufacture is low, in relation to either wages and salaries or to the value of materials consumed.
2. Higher proportions of unskilled and semiskilled labor are employed than are normal in American industry.
3. Relatively low average wages are paid.
4. A large proportion of the product becomes "raw material" for other processors, employing more highly skilled labor; these are located, as a rule, outside the region.

Industries of the higher order and designed to serve the regional market are, however, represented in the region, and there is evidence that they were growing even prior to the period of national defense. (Table VIII–B.) A comparison of the number of employees in the region in 9 of the higher types of industries in 1929 and 1939 shows the following: [3]

Industry	Number of employees, 1939	Number of employees, 1929	Percentage increase in 10 years
Canned and preserved foods	10,871	3,841	183
Paper, pulp, paper products	9,953	891	1,117
Footwear, except rubber	6,284	2,116	197
Butter, cheese, condensed milk	851	477	78
Textile machinery	1,070	849	26
Textiles, dyed and finished	12,392	9,012	38
Stoves and ranges	6,258	4,363	43
Mattresses and bedsprings	2,374	1,551	53
Meat packing, wholesale	4,763	1,707	180
Total and average	54,816	24,807	121

Since the number of employees in all industries in the region increased by 7 percent during these 10 years (table IV) while those employed in these 9 higher types increased by 121 percent, the conclusion seems justified that the region is making progress both in diversification of products and in attracting or developing industries of less rudimentary types.[4]

[3] Data from *Census of Manufactures*, 1929 and 1939. Since national employment was 6 percent lower in 1939 than in 1929 (see table IV), the regional increase here shown is additionally significant.

[4] A sound, popular discussion leading to the same conclusion is found in "The Industrial South" in *Fortune Magazine*, November, 1938.

Influence of Branch Plants

The fact that Southeastern manufacturing leans so heavily toward the preliminary processings cannot be fully understood without taking into account the influence of the many "branch plants" within the region. Fully two-thirds of the total value of manufacturing in the region, and in some States more nearly three-fourths, is produced by plants which are parts of widespread systems of national and international concerns. The multi-establishment companies of the major industrial centers quite frequently find it to their advantage to have one or more of their producing units located in the Southeast; and where this occurs, the Southeastern "branch" often performs only the preliminary processings, shipping the bulk products to be finished by other plants in the same organization outside this region. Some of the finished products may return to the region as consumer goods, not uncommonly under a "list" or administered price.

This is notably the case in the iron and steel, aluminum, and chemical industries, and is true to some extent in textiles, wood-processing and other industries. The *Census of Manufactures* of 1939 for the first time enables this condition to be measured approximately by classifying the manufacturing units by States, into "plural-unit" or "central-administrative" establishments on the one hand, and "single-unit" or "independent" establishments on the other. While there are some plural-unit factories, for instance in the textile industry, which are wholly of Southeastern ownership and control, this is compensated in the figures by the number of single-unit factories which are owned and directed from outside the region. The classification fundamentally reflects the division of manufacturing into remote and "home" controls (Fig. 28).

Nationally, as table IX shows, 18.5 percent of all manufacturing establishments in 1939 were in this category and produced 64.9 percent of the total value of

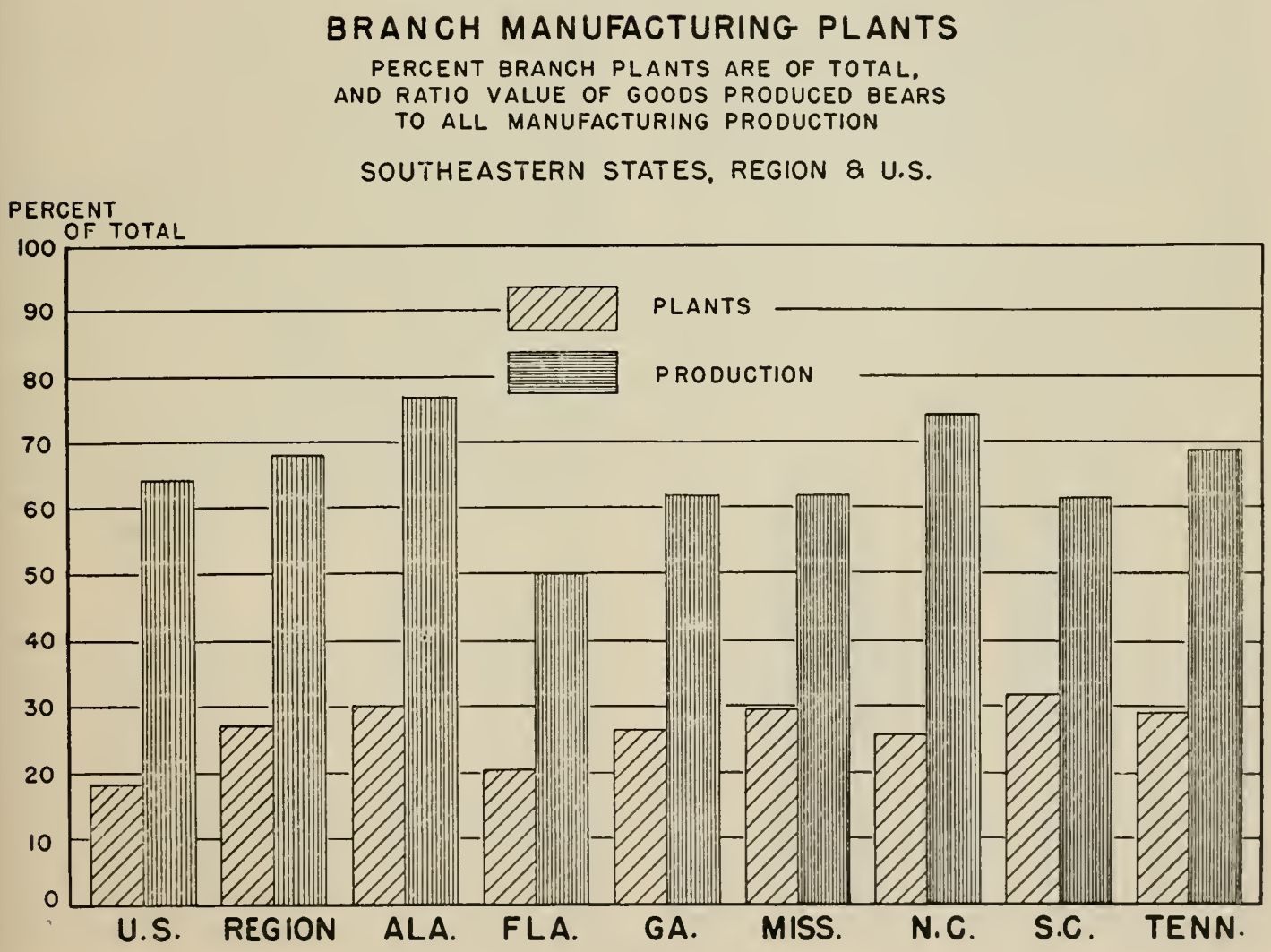

Figure 28

products. In the Southeastern region, 27.2 percent of all establishments were branch plants, which produced 68.5 percent of the region's total value of products. Alabama and South Carolina had the largest ratio of plural-unit plants, being exceeded in the Nation only by West Virginia.[5] These plants were well above the regional average in size; in Alabama and North Carolina they accounted for three-fourths of the total value of product. Florida, with the region's lowest ratio of branch plants, was still well above the national average.

The presence of these branch plants in the regional manufacturing structure has major implications besides that of semifinished production. Historically, they were established when the need for new and diverse industries became evident in the Southeast. The easiest way toward payroll—if not toward profits—was to import industry. The large concerns of the Northeast had the necessary capital, skills, and marketing outlets; various inducements were offered to them to put plants in the Southeast. This proclivity on the part of Southeastern promoters still lingers; it plays its part in diverting entrepreneurial energy away from the establishment and financing of new "home" manufacturing enterprises. As table IX shows, this region has 12.3 percent of the Nation's central administrative plants, but only 7.5 percent of its independent plants.

The importation of industry has resulted in the forfeiture of much of the region's power of economic self-determination. The headquarters of the parent concerns, from which branch-plant policies of production, employment, wages, and other essentials are ultimately directed, are in New York, Pittsburgh, Detroit, or some other national center. Communities wholly or largely dependent upon branch-plant employment lack the freedom to plan or control the fundamentals of their economic life. While the policies of the national companies have shown a wide range from callous exploitation to benevolent paternalism, the lack of community influence over community destinies remains as an ironic factor in a region which, as far as its political and social mores are concerned, is strongly individualistic and independent.

The final result has been the negative effect upon the financial structure of the region. The branch plants create payroll, but their net earnings, like their products, are generally exported. Either the earnings of this large sector of Southeastern industry are distributed as dividends or interest on nationally listed securities, or they go into the making of corporation reserves at the national centers. Thus, except for payroll, much of this region's manufacturing activity fails to enrich the region. Some portion of the net earnings may return to stockholders residing within the region, but personal capital so derived is not, as a rule, regionally minded or "venture-minded." It has been noted that the establishment of a branch plant in an area often tends to stimulate the sales of the securities of the parent concern in that area. Such investment becomes competitive to the needed types of regional development, which require the local financing of new enterprises. Hence, the branch-plant situation operates in two ways to deplete the region's capital structure by the export of industrial savings.

Since war production began, there has been a marked increase in the entry of plural-unit branches into the Southeast, coupled with a serious pressure upon the small independent manufacturing concerns which have not obtained war contracts. The effects of this trend cannot be determined accurately for the present.

TABLE IX.—*Plural-unit and single-unit manufacturing establishments in the Southeastern region, 1939*

State	Number of establishments			Value of products, 1939		
	Plural unit	Single unit	Percent plural unit	Plural unit	Single unit	Percent plural unit
Alabama	618	1,434	30.1	$443,025,199	$131,645,491	77.1
Florida	467	1,616	22.4	120,973,930	120,564,604	50.1
Georgia	845	2,305	26.8	420,480,579	256,922,078	62.1
Mississippi	383	911	29.6	108,578,578	66,358,716	62.1
North Carolina	815	2,410	25.3	1,053,454,872	367,874,706	74.1
South Carolina	418	913	31.4	243,557,434	153,955,429	61.3
Tennessee	654	1,635	28.6	498,889,153	229,198,672	68.5
Region	4,200	11,224	27.2	2,888,959,745	1,326,519,696	68.5
United States	34,087	150,143	18.5	36,913,200,468	19,929,824,332	64.9
Regional percent of United States	12.3	7.5	-------	7.8	6.7	-------

[5] A preponderance of "branch" plants is found throughout the South in general. There are, in the Nation, 16 States in which more than one-fourth of the factories are in this category. Six of them are in the Southeastern region as here defined, and six others are either immediately adjacent to the region or only one tier removed. The list follows: West Virginia, 31.76 percent; South Carolina, 31.4; Alabama, 30.1; Arkansas, 30.06; Virginia, 30.05; Delaware, 29.6; Mississippi, 29.59; Louisiana, 29.0; Tennessee, 28.6; Idaho, 27.1; Maine, 26.9; Georgia, 26.8; Texas, 25.9; Oklahoma, 25.34; North Carolina, 25.27; and Vermont, 25.24.

The Textile Industry

The textile industry group overshadowed all others in the region in 1939. In table VIII–A, 19 of the 78 industries with more than 1,000 wage earners are textile industries, including the largest—cotton broad woven goods—which had 224,399 wage earners, or 24.8 percent of all manufacturing workers in the region. The entire industry accounted for 457,216 wage earners, or 52.6 percent of the regional manufacturing employment; and if the byproduct and other fiber industries derived from or stimulated by the textile industry be added, 482,554 workers, or 53.4 percent, of the regional total are accounted for.

The greatest textile employment was in the cotton branch, as follows:

	Wage earners
Cotton broad woven goods	224, 399
Cotton yarn	62, 359
Work clothing, except shirts	11, 227
Work shirts	7, 546
Textile bags	2, 063
Cotton thread	2, 047
Work gloves and mittens	665
Cotton narrow fabrics	379
Total	310, 685

The rayon industry was developing, however, and some of the above items may include the mingling of rayon and cotton. The silk industry employed 72,079 workers in its hosiery group alone, including some rayon. Woolen and worsted manufactures were less developed, accounting for 7,706 wage earners, with others in the mixed or finishing groups. Of the 457,216 wage earners, 124,137 were in consumer-goods industries, the cheaper varieties, such as work clothing, being strongly emphasized.

The Southeast rose to a dominant position in cotton manufacturing in the United States mainly during the decades 1910–30. Since 1911 the mills in the cotton-growing States [6] have consumed more cotton as raw

[6] The term "cotton-growing States," is a special *Census* classification including 14 States, but most of them do little or no manufacturing of cotton. The five States, Alabama, Georgia, North Carolina, South Carolina and Tennessee, within the region, carry on over 90 percent of all the cotton manufacturing done in the "cotton-growing States."

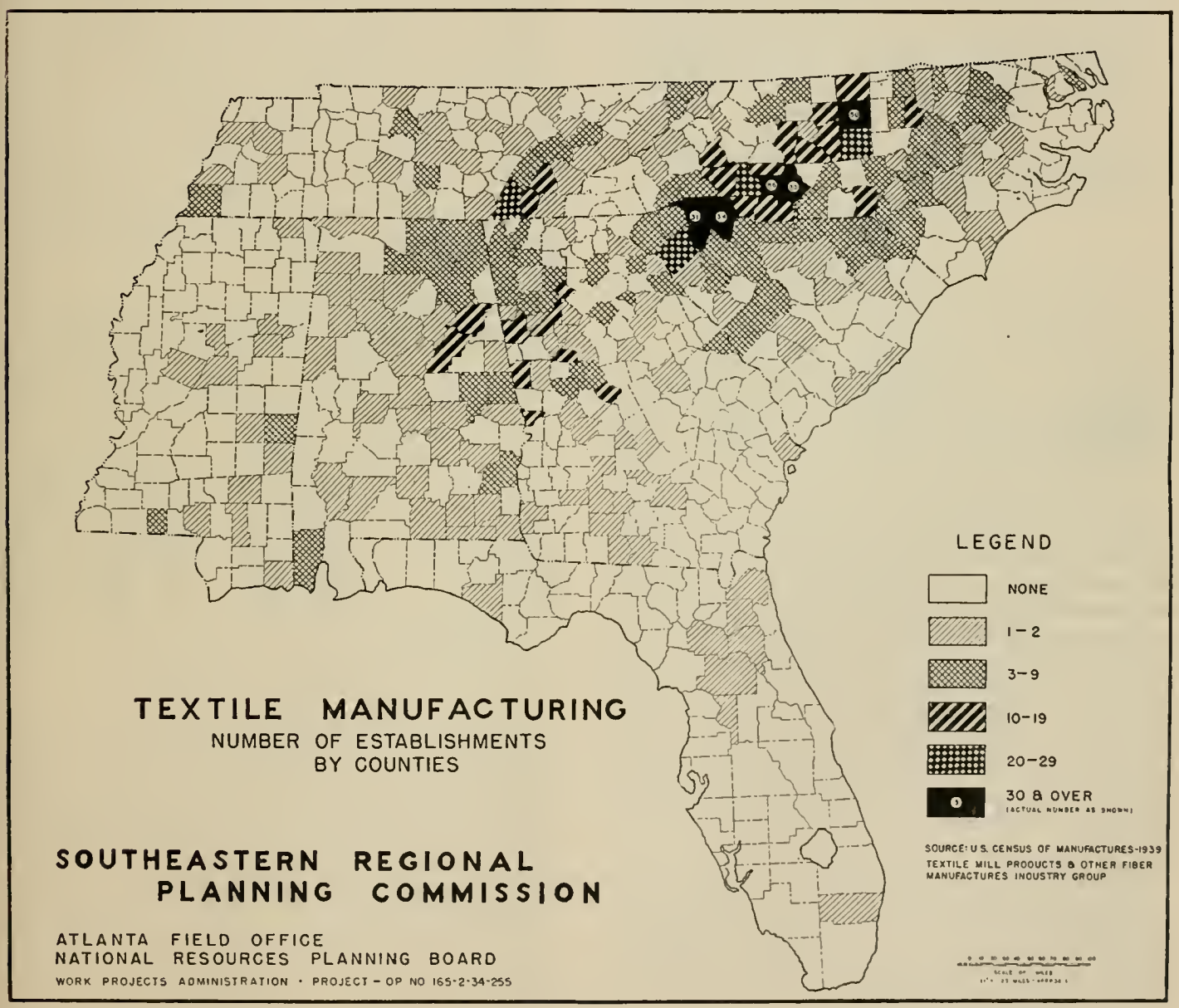

Figure 29

material than the mills in all other States combined; the number of spindles in mills in the cotton States in 1927 passed the number of spindles in mills in all other States combined.[7] The five States in this region doing significant cotton manufacturing (Mississippi and Florida omitted) showed in 1940 75 percent of the active spindle hours, and 80 percent of the bales of cotton consumed in the United States (table X). In the consumption of cotton North Carolina was first, using over two million bales or 26 percent of all cotton consumed in the United States. Georgia and South Carolina ranked second and third respectively, each taking 20 percent of the total American mill consumption. The mills in these three States, therefore, consumed 66 percent, or about two-thirds, of the national total. Active spindle hours, considered a good measure of the degree of activity prevailing in the mills, including two- and three-shift operations, show South Carolina leading, with North Carolina second, the two having 50 percent of the activity in all American mills.

TABLE X.—*Consumption of raw cotton and active spindle hours of mills in 5 States of the region and in United States, 1940* [1]

	Bales of cotton consumed		Active spindle hours	
	Number	Percentage of United States total	Number	Percentage of United States total
United States	*Thousands* 7,784	100	*Millions* 97,006	100
States in region	6,200	80	72,573	75
Alabama	868	11	7,635	8
Georgia	1,565	20	13,554	14
North Carolina	2,040	26	23,491	24
South Carolina	1,536	20	25,279	26
Tennessee	191	3	2,614	3

[1] Source: Bureau of the Census, *Cotton Production and Distribution*, Bulletin 177.

The pattern of location of the cotton manufacturing industry in the Southeast differs strikingly from that in New England and the British Isles in its diffusion and decentralization. There is no single textile center in the Southeast comparable to Fall River, Mass., or Manchester, England. Typically, the plants are in or near towns or small cities, and many of them are in the open country, surrounded by the mill village.[8] The mills are not, however, diffused uniformly over the Southeast; they are scattered through the Piedmont in a broad crescent, about 100 miles wide, running from Danville, Va. to Montgomery, Ala. (Fig. 27.)

[7] Data from annual publication of Census Bureau, *Cotton Production and Distribution*, Bulletin 177.

[8] Since many of the mills were built outside the towns, houses, streets, water, and other utilities were usually provided by the mill companies which charged less than commercial rates for their use. Houses were rented at times for about one dollar per room per month. Part of the "real wages" of the workers have been paid in such forms. Critics have assailed the paternalism and control over private life involved in these arrangements, but in many cases they were necessary under the circumstances. As to quality of housing, the mill villages vary from those which have been seriously criticized to some which are excellent.

This diffusion of the industry means that the typical mill is close to farms from which, historically, nearly all its labor has been recruited. There is considerable short-term migration even today from farm to mill and back again. The wages are not high and were even lower prior to passage of the Wages and Hours Act. But the wage income from textile employment has been eagerly sought by thousands of impoverished farm families from overpopulated districts with much poor and eroded land. The move to the mill village, and to cotton-mill work, has involved drastic changes in the way of life of these families. The villages in many cases have offered better health facilities, better schools, a less individualistic social life and certainly more cash income than they had experienced previously. The mill employment also has meant irksome indoor work of a monotonous character, to which personal adjustment has been difficult and in some cases has been unsatisfactory. Long hours, night work, and extensive employment of women and children have complicated the problems of personal and family adjustment. Today there are veteran "mill families" throughout the textile area; expansions of employment often consist in hiring additional members of these families, so that it is quite common for more than one family member to be employed.

TABLE XI.—*Production of cotton yarn, thread, and broad woven goods in the Southeastern region and United States, 1939* [1]

	Number of wage earners	Wages paid	Average wage	Value of product	Value added by manufacture
United States	422,960	*Thousands* $280,759	$664	*Thousands* $1,119,670	*Thousands* $547,211
Region	288,805	194,728	670	795,688	373,704
Alabama	33,752	21,109	625	89,122	40,639
Georgia	61,850	41,738	675	169,827	75,995
Mississippi	2,629	1,451	552	4,220	1,796
North Carolina	1,109,637	74,664	681	323,540	164,714
South Carolina	74,413	50,989	685	192,529	82,875
Tennessee	6,524	4,777	732	16,450	7,685
Percentage of United States in region	68.3	69.3	----------	71.0	68.3

[1] Source: *Census of Manufactures, 1939* (preliminary edition).

About 70 percent of the cotton manufacturing in the country takes place in six of the seven States of the region, Florida excluded. Table XI reveals that, of the national total, the Southeast has 68 percent of the wages, produces 71 percent of the value of product and creates 68 percent of the value added by manufacture.[9] North Carolina has about 40 percent of the regional

[9] Prior to 1939 the *Census* used the term, "cotton manufactures." In that year the operations in "cotton manufacturing" were broken down into more descriptive subdivisions. Cotton yarn, thread, and broad woven goods are believed to represent, in the 1940 *Census*, fairly accurately what had previously been termed "cotton manufactures."

otal, South Carolina about 25 percent and Georgia about 20 percent, with the remaining 15 percent in Alabama, Tennessee and Mississippi. The mills in this region pay slightly higher average annual wages than does the Nation as a whole: $670 in the region, $664 in the Nation.

While the processing of cotton through its early stages has been by far the region's leading industry, and a source of much-needed employment, it is not a satisfactory industrial base for the future. It does not create high values per worker, or per dollar of capital invested. The present textile industry primarily requires more advanced and value-creating processes, such as dyeing, finishing, and converting cloth, and the making of finer grades of textiles; and it should be supplemented by a wide variety of nontextile industries.

The extent to which the processing of textiles beyond the initial stages has already developed is worth examination. Table XII lists nine industries which process cloth outside of, or beyond, the first stages of cotton manufacturing. This region has approximately 28 percent of the national value of product in these nine lines. Six of the nine (seamless hosiery, full-fashioned hosiery, work shirts, work clothing except work shirts, men's and boys' shirts except work shirts, and knitted underwear) produce finished consumers' goods. The other three (rayon broad woven goods, textile bags not made in textile mills, and dyeing and finishing cotton, rayon, silk, and linen textiles) make producers' goods. These nine industries combined employed 145,430 wage earners in 1939, or 30 percent of all the wage earners employed in these industries in the country. In two of the industries, seamless hosiery and work shirts, the region had in 1939 over 50 percent of the national employment.

Annual wages in these nine industries averaged $789 in the Nation and $732 in the region. This supports the inference that the later textile processings are not always desirable as a regional asset, though there are exceptions to this statement. Work shirts paid the lowest average wage in the group, $498 in the region, $489 in the Nation, its wages being affected by the low unit-value of the product, the high proportion of unskilled and semiskilled labor required, and the heavy predominance of female workers. In seven of the nine industries, the regional average wage was below the national. The highest average wage, $998 in the region, $1,086 in the Nation, was paid by the full-fashioned hosiery industry, a product of high unit-value, using relatively skilled labor. In textile bags, the regional average wage was higher than the national, and the small portion of the industry that lay within the region indicated a possible growth. The dyeing and finishing of textiles apparently also presented a favorable possibility.[10]

TABLE XII.—*Certain textile industries, other than first processing of cotton, United States and Southeastern region, 1939* [1]

Industry	Number of wage earners	Wages paid	Average wage	Value of product	Value added by manufacture	Percentage of entire industry in the region [2]
		Thousands		*Thousands*	*Thousands*	
Hosiery, seamless:						
In United States	62,844	$41,862	$666	$138,665	$72,090	
In region	42,415	27,502	648	89,265	43,957	64.3
Hosiery, full-fashioned:						
In United States	101,594	110,775	1,086	277,170	156,606	
In region	29,112	28,934	998	82,481	44,799	28.9
Rayon broad woven goods:						
In United States	69,113	53,435	773	272,714	95,271	
In region	25,560	19,360	757	96,320	31,572	35.1
Work shirts:						
In United States	14,863	7,269	489	35,672	14,253	
In region	6,860	3,418	498	20,739	7,380	51.7
Work clothing, except work shirts:						
In United States	62,035	36,797	593	184,223	71,679	
In region	11,227	6,119	545	36,052	12,836	18.5
Textile bags not made in textile mills:						
In United States	13,230	10,003	756	121,702	27,895	
In region	1,828	1,507	819	14,349	3,540	12.7
Men's and boys' shirts, except work shirts:						
In United States	60,832	37,323	612	181,174	73,682	
In region	6,415	3,339	525	16,335	7,741	10.0
Knitted underwear:						
In United States	41,148	27,405	668	113,353	51,739	
In region	9,621	6,074	633	23,199	11,240	21.9
Dyeing and finishing cotton, rayon, silk, and linen textiles:						
In United States	64,020	61,745	965	271,167	130,695	
In region	12,392	10,205	823	50,597	24,386	18.9
Total of above industries:						
In United States	489,679	386,614	789	1,595,840	693,910	
In region	145,430	106,458	732	492,337	187,451	27.9

[1] Source: *Census of Manufactures*, 1939 (preliminary).

[2] A simple average of the percentages of number of wage earners, value of product, and value added in the region to the United States total. For example, in seamless hosiery the region has 67.5 percent of the Nation's wage earners, 64.2 percent of the value of product, and 61.1 percent of the value added. The average of these 3 percentages is 64.3, which is regarded as the "Percentage of the entire industry in the region."

On the whole, except for full-fashioned hosiery, table XII indicates that the manufacture of finished textiles in this region thus far has emphasized the coarser and cheaper lines. The industry may later work into the finer grades, as England and New England did a half-century to a century ago. New textile industries of a region usually begin with the spinning and weaving processes, sending their grey goods out to older establishments to be dyed, finished, and made into final manufactured forms. Later the dyeing and finishing industries come to the new producing area, seeking proximity to the weaving plants. These are followed by concerns manufacturing the coarser and cheaper grades of finished consumer and industrial goods. The last stage is the development of industries specializing in high-

[10] A lower average annual wage in the region does not necessarily mean a lower wage rate per hour. It may mean fewer days of employment per worker during the year. While this may in turn reflect a policy of spreading work among more employees, it goes without saying that workers must live the year around on their annual wages unless they return to the farm.

grade, high-value finished goods, with attendant industries producing accessories and servicing the main plants. The last stage comes partly as a matter of natural expansion, partly as skilled labor, markets, and capital facilities are developed, and partly (a consideration in which the Southeast is at a disadvantage) from proximity to the style centers. The Southeast, in 1939, had reached the intermediate stage of dyeing, finishing, and coarse consumer-goods manufacturing.

War production has meant a development in this industry which, since the end of 1940, has been engaged generally in producing Army and Navy goods on a three-shift basis with a considerably expanded employment. The industry appears likely to emerge from the war period stronger financially than ever before, with a large backlog of delayed national consumer-demand, and in a position to make whatever readjustments its leaders may decide. For the hosiery and other silk-processing industries, however, the prospect is dubious; the ending of silk imports involved a change to proprietary fibers, creating problems of both capital outlay and supply. In 1942 the employment in this highest-wage regional textile subindustry has been considerably reduced.

The Wood Industry

Next to textiles, the Southeast specializes in the manufacture of wood products. Favored by an excellent climate the forest resources scattered through this region have long been one of the chief sources of lumber in the United States. There are few large timber holdings, but many small ones, and to a considerable degree the Southeast's logging industry is an off-season supplement to farming. Much of the wood has been shipped out as lumber, creating employment only in lumbering and sawmills—another example of first-stage processing.

An increasing proportion, however, has been kept within the region for further processing. For some years, for example, North Carolina has been an important producer of household furniture. In recent years the pulp and paper industry has been expanding.[11] Plywood manufacture is also of increasing importance, various hardwoods in the region being adaptable to the making of high-grade veneers. In average annual wages, most of the regional lumber industries fall considerably below the national level. This is especially notable in the sawmills and planing mills and is partly accounted for by seasonality and the borrowing of labor from the farms.

[11] This expansion is not adequately revealed by the *Census* figures, since the *Census* will not publish data on industries in a particular State when these are so few in number, to avoid disclosing confidential information. In several States of this region there are only one or two paper mills and they are large modern mills.

Industry	Average annual wage in region	Percentage below or above the national average
Saw mills	$503	−32.7
Planing mills	645	−31.5
Plywood mills	672	−28.3
Wooden boxes	512	−26.0
Furniture	689	−17.9
Paper-board containers	799	−13.1
Paper bags	915	+4.0
Pulp mills	1,172	+1.8
Wood preserving	1,038	+16.7

The table shows that production of finished consumer goods is no assurance of a high-wage industry; household furniture in the region paid on the average only $689 and in the Nation $839 in 1939. The pulp mills averaged $1,172 and wood preserving $1,038, the determining factors including such considerations as year-round operation, the degree of skill and training required of employees, and the extent of mechanization, as well as an abundant labor market.

TABLE XIII.—*Wood-manufacturing industries, Southeastern region and United States, 1939*[1]

Industry	Number of wage earners	Wages paid	Average wage	Value of product	Value added by manufacturer	Percentage of entire industry in the region[2]
		Thousands		*Thousands*	*Thousands*	
Saw mills, veneer mills:						
In United States	287,309	$214,920	$748	$692,945	$412,935	
In region	82,421	41,514	503	156,900	89,910	25
Planing mills, not operated in conjunction with saw mills:						
In United States	66,656	62,815	942	320,614	142,879	
In region	15,529	10,017	645	63,966	25,157	20
Pulp mills:						
In United States	28,791	33,146	1,151	226,852	82,115	
In region	2,968	3,481	1,172	23,503	10,739	11
Plywood mills:						
In United States	10,611	9,943	937	38,879	20,554	
In region	1,972	1,325	672	5,633	3,041	16
Paper and paper board mills:						
In United States	113,888	142,560	1,251	933,016	400,755	
In region	2,040	2,396	1,174	23,752	11,683	2
Paper-board containers not elsewhere classified:						
In United States	69,302	63,806	920	382,710	168,871	
In region	2,212	1,768	799	13,158	5,367	3
Paper bags, except those made in paper mills:						
In United States	12,071	10,629	880	85,776	31,812	
In region	1,101	1,008	915	7,905	1,795	8
Wooden boxes:						
In United States	27,670	19,159	692	87,354	41,597	
In region	8,299	4,255	512	18,220	9,668	25
Wood preserving:						
In United States	11,293	9,764	864	106,295	28,818	
In region	1,552	1,611	1,038	16,772	4,805	15
Wood products not elsewhere classified:						
In United States	23,684	17,680	749	69,186	38,895	
In region	3,390	2,229	656	9,740	5,195	14
Household furniture:[3]						
In United States	135,678	113,891	839	457,354	236,184	
In region	24,545	16,882	689	69,722	35,664	15
Total above industries:						
In United States	786,853	698,313	887	3,400,981	1,605,415	
In region	146,029	86,486	592	409,271	203,024	15

[1] Source: *Census of Manufactures, 1939.* Preliminary.
[2] Computed by the same method as in table XII.
[3] Composed of the *Census* classifications "Household furniture" and "Upholstered household furniture."

According to table XIII, the region has approximately 19 percent of the Nation's total of wage earners engaged in the lumber industries, pays them about 12 percent of the Nation's wages, turns out about 12 percent of the value of the national product, and creates about 13 percent of the national value added. The regional average annual wage was one-third lower than the national, because the lowest wage-payer in the group, sawmills, made up a disproportionate part of the total. The fact that many of the regional sawmills are small enterprises, employing farmers and other neighborhood workers on a seasonal basis, is reflected in the average annual wage of only $503. In a region characterized by low farm incomes, the sale of timber by farmers and the employment of farm workers out of season are sources of secondary income to many rural families.

The region, for all its abundance of timber, has a conservation problem. The small lumbering unit is almost immune to conservationist trends. Since the defense period began, the heavy demand has seriously depleted the capital asset of this industry in some soft-pine sectors, and some years will be required for recovery.

Other Important Industries

Of the 902,759 wage earners in the Southeast in 1939, the textile industries employed 475,216 and the wood industries 167,640, making 77.21 percent of the total.

Of the remaining 259,903 wage earners, all but a minor number may be grouped into eight broad classes, as shown in table XIV. The most important group is the metal industries, made up of some 24 *Census* classifications and employing nearly 50,000 wage earners, almost exclusively in iron and iron products prior to the wartime emergency.[12] Steel and its many derivatives had had little significant development up to 1939. The Birmingham area is one of the low-cost centers of iron production in America, owing to large deposits of the necessary ingredients—iron ore, coking coal, and limestone—in close proximity.[13] The low cost of production of pig iron has drawn the cast-iron pipe industry of the Nation largely to this region. Inland-water transportation between Birmingham and Mobile provides a cheap export outlet to Central and South America and California, which may hold promise for the future as South America becomes more highly industrialized. In other parts of the region than the Birmingham area, some iron and steel products are processed, drawing their materials in some cases from Birmingham, in others from outside the region.[14]

Of almost equal importance are the food and feed industries, largely producing consumers' goods. Some of these goods are perishable (bread, ice, candy, ice cream) and the industry must locate, therefore, in or near the market. Others produce for a wider market, subregional, regional, or national (canned fruits and vegetables, canned fish, cottonseed oil, meat packing, flour). The future development of the food industries in this region, as of nearly all of its other industries, rests on various factors: promotional vigor, rising incomes, the capturing of a larger proportion of the regional market by local industries, the region's agricultural modifications, and its ability to sell more processed foods in the national and international markets.

One of the main agricultural products of the Southeast since colonial times, tobacco culture, has become steadily more concentrated in the Carolinas and Georgia, as its manufacturing industry has expanded with increasing demand. Other types of agriculture would be more generally beneficial to the region, however, for tobacco growing tends to exhaust the soil. The cigar-making industry in Tampa, Florida, depends upon imported tobacco.

Earthen products, cement, brick, and tile, are produced to some degree, but their weight and low value make long-distance shipment impracticable. Local centers of production tend to serve only subregional markets. The quantity and quality of certain clays, including Kaolin or pottery clay, and mica, talc, phosphates, and other nonmetallic earthen resources, may attract in time more manufacturing based on these raw materials. The Tennessee Valley Authority is doing commendable research along these lines.

The printing industry is relatively small in this region.

Fertilizers are regionally important, not so much for the 9,216 workers employed, but rather for the fact that the Southeast buys and uses more commercial fertilizers than any other region in the United States, to revitalize the soils which continuous production of tobacco and cotton has exhausted. Commercial fertilizers are emphasized since animal refuse used to restore the soils of other farming sections, such as the Middle West, is not commonly available in the quantities needed by tobacco and cotton farms.[15] As this region shifts its farming emphasis from cotton and tobacco to livestock and dairying, the demand for

[12] Aluminum is a recent development. It exists in two forms: the bulk-reducing first-processing of bauxite ore, imported into the region from the Guianas, and the manufacture of aluminum by electrolysis. The regional deposits of low-grade bauxite are not being utilized as yet.

[13] For fuller treatment of the advantages of the area in iron production and its disadvantages in steel production, see Frazer, C. E. and Doriot, O. F., *Analyzing Our Industries*, McGraw-Hill, 1932, ch. XI; White, L., "The Iron and Steel Industry of the Birmingham, Ala. District," *Economic Geography*, IV (October 1928), 350–65; Zimmermann, E. W., *World Resources and Industries*, Harper, 1934, ch. XXXI.

[14] Changes in the iron and steel industry of the region in connection with war production are evidently important, but cannot as yet be reported.

[15] For growing cigarette tobacco on most Carolina soils, fertilizer must have a high content of phosphoric acid, which means that commercial fertilizer of high phosphorus content is superior to animal manures.

TABLE XIV.—*Eight industry groups other than textiles, with principal industries itemized, Southeastern region, 1939*[1]

Industry	Number of establishments	Number of wage earners
I. Other fabric industries group:		
Cordage and twine	22	2,992
Mattresses and bedsprings	107	2,374
Prepared waste and recovered wool fibers	11	654
Carpets, rags, and mats	5	556
Jute goods, except felt	3	470
Batting, padding, and wadding	12	292
Total	160	7,338
II. Wood industry group:		
Sawmills, veneer mills	2,817	82,421
Furniture, household, except upholstered furniture	175	19,797
Planing mills, not in conjunction with sawmills	638	15,529
Boxes, wooden, except cigar-boxes	72	8,299
Paper and paperboard mills	26	5,403
Furniture, household, upholstered	66	4,956
Pulp mills	21	4,043
Wood preserving	40	3,334
Plywood mills	31	2,626
Logging camps, not operating sawmills	146	2,607
Paperboard containers and boxes	58	2,248
Baskets for fruits and vegetables	30	2,176
Wood naval stores	20	2,005
Caskets, coffins, and other morticians' goods	81	1,265
Paper bags (not made in paper mills)	3	1,101
Other	1,044	9,830
Total	5,268	167,640
III. Metal group:		
Steel works and rolling mills	9	13,496
Cast-iron pipe and fittings	27	9,027
Stoves, ranges, heaters	38	6,258
Shipbuilding and ship repair	31	3,436
Gray iron and semisteel castings	93	2,258
Fabricated structural steel and ornamental metal work	60	2,235
Blast furnace products	7	2,224
Power boilers and associated products	19	1,648
Oven coke, coke-oven products	6	1,451
Textile machinery	40	1,070
Agricultural machinery except tractors	24	990
Tin cans and other tinware	11	514
Sheet-metal work, not specially classified	46	465
Other	329	4,867
Total	740	49,939
IV. Food and feed group:		
Bread and other bakery products	681	12,786
Canned and dried fruits and vegetables	122	6,764
Meat packing, wholesale	90	4,763
Beverages, nonalcoholic	768	3,835
Canned fish and mollusks	37	3,357
Candy and confectionery	94	2,782

[1] Source: *Census of Manufactures, 1939.*

Industry	Number of establishments	Number of wage earners
IV. Food and feed group:		
Ice, manufactured	861	2,238
Flour and other grain mill products	314	2,077
Prepared feeds for animals and fowls	94	1,526
Ice cream and ices	241	1,353
Edible oils, fats, and fish oils	22	1,178
Biscuits, crackers, pretzels	12	856
Sausages, prepared meats, other meat products	93	826
Milk, condensed and evaporated	14	464
Pickled fruits and vegetable sauces, etc	10	443
Creamery butter	66	387
Other	212	2,531
Total	3,731	48,166
V. Tobacco group:		
Cigarettes	10	15,375
Cigars	48	9,850
Tobacco, chewing and smoking; snuff	14	2,314
Total	72	27,539
VI. Chemical and oil group:		
Fertilizers	404	9,216
Cottonseed oil, cake, meal	202	7,717
Paints, varnishes, lacquers	45	451
Insecticides, fungicides, and related products	55	396
Oils, vegetable and animal, not elsewhere classified	11	291
Coal tar products, crude and intermediate	3	155
Cleansing and polishing preparations	14	52
Soap and glycerine	9	48
Chemicals not otherwise classified	27	3,133
Total	770	21,459
VII. Earthen industries group:		
Brick and hollow tile	123	5,537
Monuments, tombstones, cut stone products	127	3,910
Concrete products	159	1,998
Cement	14	1,766
Lime	33	1,268
Minerals and earths, ground or treated	43	1,143
Vitreous enamel products, including kitchen utensils	4	982
Clay refractories, including refractory cement	7	672
Asphalt roofing, paving blocks, shingles, etc	13	299
Clay products, except pottery	5	128
Pottery products, not elsewhere classified	5	13
Total	533	17,716
VIII. Leather group:		
Footwear (except rubber)	19	6,284
Leather, tanned, cured, finished	11	1,313
Saddlery, harness, whips	17	770
Leather belting, packing leather, industrial	10	58
Total	57	8,425

commercial fertilizers will decline appreciably, the money so spent will be available for other purposes, and the fertility of the land will be restored and conserved. The long-run welfare of the Southeast, therefore, may place this industry more and more upon an exporting basis.

The naval stores industry is not a large employer of labor, though practically all of the wood and gum naval stores produced in the United States come from the coastal sections of Georgia and Florida. Synthetic naval stores are competing with the natural product, making the future of this one-time regional monopoly somewhat uncertain.

The footwear industry has made an encouraging start in the region, especially in Tennessee, and there is sound reason to believe that the Southeast may in time rival the dominant positions of Massachusetts and Missouri. Canvas and other cotton fabrics constituting materials for shoe manufacture are regionally produced, and the region, with an increase in cattle raising, is developing its own leather supply.

Major Industries: Summary

The status of Southeastern manufacturing, immediately prior to the period of national defense, may be summarized as follows:

1. More than half the regional total of manufacturing was in or closely related to textiles. This important manufacturing industry was primarily, and perhaps disproportionately, occupied in the preliminary types of processing, or in the more rudimentary types of finished manufacturing, with too little high-value production.

2. The lumber industry, engaging about one-sixth of the region's manufacturing workers, was confined largely to the cruder mill operations, although the household furniture, plywood and paper industries, which were recent developments, were of higher industrial type. The paper industry, however, was very

largely devoted to rough paper products, not even newsprint being manufactured.

3. The metals industries showed some basis for a development into higher types, and such development has in part occurred during the period of national emergency. But in 1939 the cruder processings dominated.

4. The chemicals group emphasized fertilizer manufacture, a requirement of regional farming practices pending agricultural changes which are in progress.

5. The food industries were clearly underdeveloped, whether from the point of view of the region's food requirements, or that of supplying an industrial market.

6. Metals, chemicals, paper, and in general those industries which require larger and more costly types of plant, were to a large degree controlled by central managements existing outside the region.

7. The region was subnormal in respect to the number, size and organization of independent, regionally owned enterprises. The "infant industries" demonstrated the potential versatility of the region to a considerable degree, but their total quantitative development was slight.

For a balanced economy, accordingly, the region has great need for the development of local manufacturing enterprises, capable of making full and diverse use of the region's materials and power, to satisfy its own consumer needs and to provide greater local employment.

Manufacturing: Three General Characteristics

In concluding this survey of Southeastern manufacturing as it existed up to the period of national defense, three general characteristics having a direct bearing upon the task of regional planning should be considered.

1. Size-Distribution of Manufacturing Concerns

Although its lumber-processing industry has a considerable number of small concerns, the region remains deficient in its proportion of single-unit or small independent manufacturing establishments, as shown in table IX. While it cannot be said that all manufacturing establishments in the smaller-size categories have the capacity of future growth, nevertheless there is a "seedbed" quality about small manufacturing in general which makes it valuable to conserve.

While the percentage of small manufacturing plants in this region, apart from the lumber industry, is lower than the national percentage, that of the medium-sized plants in general is higher. Under independent ownership, a business which attains medium size may be considered to have demonstrated its capacity for growth; but the case is less clear in regard to subsidiary plants which are numerous in this region. As to the largest plants, having 2,500 or more wage earners, the Southeast in 1939 had only nine in this category, far below its proportion for the Nation. (See Table XV.)

TABLE XV.—*Size-distribution of manufacturing establishments, United States and Southeast, 1939: size by number of wage earners*

Size (number wage earners per establishment annual average)	Number of establishments		Percentage of establishments	
	United States	Region	United States	Region
None	8,316	241	4.5	1.6
1 to 5	75,930	5,709	41.2	37.0
6 to 20	49,015	4,455	26.6	28.9
21 to 50	23,646	2,007	12.9	13.0
51 to 100	11,908	1,100	6.5	7.1
101 to 150	9,458	1,030	5.1	6.7
151 to 500	3,653	551	2.0	3.6
501 to 1,000	1,495	229	.8	1.5
1,001 to 2,500	634	93	.3	.6
2,501 or over	176	9	.1	.06
Total	184,230	15,424	100.0	100.06

These variations from the national size-distribution, together with the conditions cited in the discussion of branch plants above, should be sufficient to prove that the encouragement and the financing of small, new, independent industries is among the basic requirements of the Southeastern economy. Comparison with the Nation as a norm also emphasizes this, for an abundance of new establishments is a requirement of the traditional national economy.

2. Production of Durable vs. Semidurable Goods

Some industries are much more sensitive to depression than others. Industries producing nondurable goods, such as cigarettes, soap, and bread, felt the depression of the 1930's less than those producing durable goods, such as machinery, cement and furniture. Obviously, consumers must replace the nondurable goods more or less continually, creating a reasonably steady demand for these goods, which in turn makes for steadier employment and payroll sustenance of communities. Conversely, consumers in depression times can usually make their durable goods last longer, which contributes to unemployment in the communities dependent on these industries.

Since many types of goods are intermediate in their durability, a threefold classification is useful: (*a*) nondurable goods, which disappear in one or a few uses; (*b*) semidurable goods, whose life is from a few months to a year or two; (*c*) durable goods, which last for a considerable number of years. For the United States as a whole, the National Resources Committee estimated that in 1935 the value of the output of goods and

services, classified according to durability, was in the following proportions:[16]

	Percentage
Services	17
Manufactured goods:	
Nondurable	42
Semidurable	16
Durable	17
Construction	8
	100

No attempt was made to estimate these items by States or regions, so we have no clue as to how the Southeast compared with the Nation at that time. Data through which we may classify the types of manufacturing prevailing in the Southeast are available at present for a rough comparison with the United States as a whole. (See Table XVI.)

TABLE XVI.—*Wage earners, total payrolls, materials used, value of product and value added for all industries in the Southeast, in 1939* [1]

[Classified as to durability of product]

Group	Wage earners	Total pay rolls [2]	Materials	Value of product	Value added
			Thousands	*Thousands*	*Thousands*
All industries	902,847	$796,510	$2,457,161	$4,215,481	$1,758,320
Durable goods	174,943	139,267	256,687	523,245	266,556
Percent of all industries	19.38	17.48	10.44	12.41	15.16
Semidurable goods	455,372	352,657	703,617	1,299,468	595,851
Percent of all industries	50.44	44.26	24.25	30.83	33.89
Nondurable goods	272,532	304,686	1,496,857	2,392,768	895,913
Percent of all industries	30.18	38.26	60.91	56.76	50.95

[1] Source: *Census of Manufactures, 1939* (preliminary edition).
[2] Includes salaries as well as wages.

Of the $4,215,481,000 worth of products turned out by the manufacturing industries of the Southeast in 1939, $523,245,000 or 12.4 percent were produced by the durable goods industries.[17] This compares with 23 percent in the Nation as a whole. In the Southeast, $1,299,468,000 worth of goods, or 30.8 percent of the total, were produced by the semidurable goods industries, practically all being textiles. This compares with 21 percent in the country as a whole.

Since the durable goods industries, such as iron and steel, automobiles, and machinery, are the most vulnerable to depression, the region is fortunate, perhaps, in having less than the national average of this type of industry, the employees and communities of which must depend for balance upon the semi- and nondurable goods industries.

In the production of semidurable goods, this region shows considerably higher percentages than the Nation. This appears advantageous from the standpoint of avoidance of the effects of depression, until it is recognized that the high percentage is created to an abnormal extent by the textile industry, which showed itself vulnerable in the 1930's, though probably less so than the "heavy" industries. Again, a better balance of the textile base through the addition of other types of semidurable goods industries is suggested.

In the production of nondurable goods, which are the most stable type of all, this region in 1939 was approximately equal to the national average. As a preponderantly agricultural region, however, it should have exceeded that average. The nondurable industries are in large part the food processing industries; a region capable of producing a wide variety and abundance of foodstuffs ought, normally, to be an exporter rather than an importer of preserved and processed foods. This region's agricultural needs in this respect dovetail with its industrial needs, its price-level needs, and with its needs for protection against feast-and-famine fluctuations of employment in manufacturing. In types of nondurable goods not involving agricultural products, the finished processing of various kinds of products at present given only preliminary treatment would help to elevate the position of the Southeast in the national economy.

3. Relationship of Industries to Materials

Industries have further been classified into those which arise directly from the near presence of their raw materials (material-oriented industries); those which arise primarily from the consumer-needs of the communities in which they are situated (residentiary industries); and those which might without especial economic disadvantage exist in any of a wide variety of locations. This region's largest industry, textile manufacturing, is in the "relatively footloose" category; yet as compared to a national standard of 81 percent of employment in the "footloose" industries, the Southeast had in 1939 but 72 percent.[18] (Table XVII.) This indicates a failure to develop or attract types of manufacturing (outside the textile group) which can exist nearly anywhere. Residentiary industries also were deficient, accounting for less than 7 percent of employees compared to 10.4 percent for the Nation. This reflected the low average consumer income of the region. In the material-oriented industries, the regional percentage was correspondingly large, these industries accounting for 21 percent of the employees as against a national 8.7 percent. This figure, however, was due to the deficiency in the other two classifications quite as much as to the lumber industry and other forms of manufacturing based upon regional resources.

[16] National Resources Committee, *The Structure of the American Economy*, pt. I, 1939, p. 71.

[17] Chiefly by saw and veneer mills, planing mills and factories making furniture cast-iron pipe, stoves, and ranges, brick and tile, blast furnace products, structura steel, cement and concrete products, and by shipbuilding.

[18] Based on National Resources Committee, *op. cit.*, p. 36 and Appendix A.

TABLE XVII.—*Wage earners, total payrolls, materials used, value of product and value added for all industries in the Southeast, 1939* [1]

[Classified by relationship to raw materials]

Group	Wage earners	Total payrolls [2]	Materials	Value of product	Value added
			Thousands	*Thousands*	*Thousands*
All industries	902,847	$796,510	$2,457,161	$4,215,481	$1,758,320
Material oriented industries	188,924	146,218	741,598	1,131,644	384,046
Percent of all industries	20.92	18.36	30.42	26.84	21.84
Residentiary industries	62,434	77,911	163,327	372,872	209,545
Percent of all industries	6.91	9.78	6.65	8.84	11.92
"Relatively foot-loose" industries	651,489	632,381	1,552,236	2,700,965	1,165,719
Percent of all industries	72.17	71.86	62.93	64.32	66.24

[1] Based on *Census of Manufactures, 1939* (preliminary) and National Resources Committee, *The Structure of the American Economy*, 1939, p. 36 and Appendix A.
[2] Includes salaries and wages.

Locational Factors

A combination of factors, some accidental, some planned, is usually found when tracing the origin of any given industry.[19] The arbitrary choice of site by management, for reasons of personal interest; the natural attachment of an industry to the area in which it has long been established; the high costs of relocation; the tendency of industries of a given type to cluster; the availability of labor and services; these have been among the influences affecting the location of industry. Taking these factors for granted, as well as the general principle that private enterprise primarily seeks cost savings and profitable returns, we may examine certain locational considerations which are emphasized in the Southeast:

1. Natural resources and raw materials.
2. Labor supply and labor costs.
3. Markets.
4. Fuel, power, and transportation.
5. Finance, especially capital and taxation conditions.

Natural Resources and Raw Materials

Manufacturing industries experiencing a strong pull toward raw material sources are:

1. Those in which the transportation situation requires a great reduction of bulk. Ore smelting is an example. Saw mills, citrus juice and other canning, and dehydration of vegetables are pertinent examples for this region.

2. Those in which the raw material is highly perishable and hence must be processed close to its source. While modern refrigeration methods have partly overcome this factor, it still remains effective in some commodities. Fish packing, cheese making, fruit and vegetable canning illustrate this locational tendency.

3. Those using the finished products of another industry. In the case of textile subindustries making consumer goods, this factor has already been pointed out as applying to the Southeast. The same consideration applies to the iron and steel industry, the lumber industry and to a long list of industries utilizing diversified farm products.

4. Those using the by-product of another industry. A large meat packing plant may have a dozen by-product plants around it. Cotton seed oil plants are close to the cotton gins. Research is active in devising new methods of utilizing lumber and its byproducts.

Of the two chief industries in the Southeast, textiles and wood, proximity to raw materials is of some, though probably of minor, importance as a locational factor in the former and of major importance in the latter. If a cotton mill can buy the proper quality of staple near the mill, there is of course an appreciable saving. But if it must come from a distance, as for instance from Texas, which is not uncommonly the case, this factor vanishes; for the transportation cost by rail or ocean-and-rail to the Piedmont cotton mills is about as high as from Texas to New England by all-water carriage. Other forms of textile manufacturing, silk, rayon, nylon, and wool, have almost no direct pull to this region on account of raw materials, other than the presence of large quantities of the desired kind of water. Indirectly, however, the existence of adaptable labor skills and machinery in the region, as a result of cotton manufacturing, has influenced the location of mills of these types.

The wood industries are more definitely oriented toward their supplies. This is true, not only of the primary processes (saw mills, turpentine camps, etc.) but many of the secondary ones as well (furniture, plywood, wooden boxes, pulp and paper, etc.). Newsprint manufacture is regarded by research chemists as a possibility.

Other important regional industries showing locational tendencies toward raw materials are coal and iron in Alabama, cigarettes in North Carolina, and brick and tile in numerous small plants scattered throughout the region. On the other hand, there are mineral resources, from pottery clay to zinc, which have thus far not developed regional industries appropriate to their abundance.[20]

As Southeastern agriculture progressively shifts from cotton to food and feed crops, livestock and dairying, the change will mean fewer cottonseed oil mills, but more creameries, cheese factories and condensed milk plants; fewer cotton gins, but more meat-packing plants and canneries. Net employment would increase, since the newer industries would use more labor than the old. More value would be added to the raw material,

[19] For a general discussion of the fundamental principles of industrial location, see National Resources Planning Board, *Industrial Location and National Resources*, 1942.

[20] See chapter, "*Physical and Human Resources*," above.

hence the region might expect better wages and better returns to capital. The soil, most fundamental of resources, would also be conserved. This would be altogether a desirable change.[21]

Labor Supply and Labor Costs

A region characterized by the highest birth rate in the Nation, with scant opportunities for industrial employment, above all has meant "cheap labor and plenty of it" to the industrial entrepreneur. Despite considerable outward migration, the labor supply of the Southeast has been very abundant.[22] The pressure of chronic unemployment and underemployment has lowered the wage scales; whether it has lowered the total of wage costs or not may be somewhat debatable, but criticisms and doubts as to the efficiency of Southeastern labor, if trained, have quite generally been refuted in practice. Social and economic implications aside, this large reservoir of under-employed and low-cost labor has unquestionably been the major locational drawing card of the Southeast.

The importance of wage costs as a factor in determining location varies, logically, with its importance as an element in the cost of production. If wages constitute one-half of total costs in one industry and only one-fourth in another, the former is presumably more likely than the latter to locate in a low-wage area. The *Census of Manufactures* does not report the ratio of wages to total costs of production, but data are given by which the ratio of wages alone, or of wages and salaries, to value of product and to value added by manufacture can be computed. Table XVIII shows three of these ratios for the year 1939 for 20 of the more important industrial groups. Since wages have been low in the Southeast, this region would be expected, other things being equal, to attract those industries having a high ratio of wages or wages and salaries to value of product or value-added.

To what extent are industries with high labor-cost ratios actually present in this region? If we take the six industries with the highest ratios in each of the three columns in table XVIII we get the following order, beginning with the highest:

Ratio of wages and salaries to value of product	Ratio of wages and salaries to value added	Ratio of wages to value added
1. Transportation equipment (other than automobiles).	1. Transportation equipment.	1. Transportation equipment.
2. Lumber and timber (basic products).	2. Leather.	2. Leather.
3. Printing and publishing.	3. Apparel.	3. Lumber and timber.
4. Miscellaneous industries.	4. Lumber and timber.	4. Textiles.
5. Machinery, except electrical.	5. Textiles.	5. Automobiles.
6. Stone, clay, and glass products.	6. Automobiles.	6. Apparel.

[21] See chapter, "*Agricultural Development*," above.

[22] See chapter, "*Physical and Human Resources*," above.

TABLE XVIII.—*Labor cost ratios in various industrial groups in the United States, 1939* [1]

Industry group	Ratio of wages and salaries to value of product	Ratio of wages and salaries to value added	Ratio of wages to value added
All manufacturing industry	19.1	44.1	36.8
1. Tobacco manufactures	5.8	22.0	19.6
2. Products of petroleum and coal	7.4	32.3	25.7
3. Food and kindred products	10.2	30.3	25.7
4. Chemicals and allied products	12.7	25.2	19.0
5. Nonferrous metals and products	18.6	43.3	36.3
6. Automobiles and equipment	18.6	56.8	48.9
7. Paper and allied products	18.1	42.0	35.6
8. Rubber products	22.0	48.9	39.7
9. Iron and steel and their products, except machinery	23.3	52.0	44.4
10. Apparel and other finished products, made from fabrics	21.5	51.6	47.4
11. Leather and leather products	23.6	56.1	50.4
12. Textile mill products and other fiber manufacturing	25.7	55.4	49.9
13. Furniture and allied products	24.9	50.3	43.8
14. Electrical machinery	26.3	45.5	33.6
15. Stone, clay, and glass products	26.6	42.1	36.2
16. Machinery, except electrical	28.7	45.6	38.0
17. Printing, and publishing and allied industries	28.1	41.1	33.6
18. Lumber and timber basic products	30.6	55.6	50.2
19. Other transportation equipment	33.4	62.6	50.7
20. Miscellaneous industries	27.1	45.4	37.2

[1] Computed from *Census of Manufactures, 1939*, preliminary.

Those appearing in two or all three lists are: Other Transportation Equipment, Lumber and Timber Products, Leather, Textiles, Apparel, and Automobiles. Three of these are found in the region in some strength (Lumber and Timber Products, Textiles, and Apparel). Leather products are also found. It may be reasonably concluded that labor costs have had a considerable influence in their locating here. Not found to any appreciable extent in the region are Other Transportation Equipment and Automobiles, because for them countervailing factors are more important than labor costs alone.

Textile manufacturing is considerably influenced by low labor costs. That the cotton mills in this region for many years paid lower hourly wages than those in New England, even allowing for mill village housing and other forms of "wages in kind," is well established. In the 1910's and the 1920's the northern mills paid from one-third to two-thirds more per hour than the southern mills.

These lower hourly rates of pay [23] combined with the longer average workweek and fewer restrictions on night work prevailing in the Southeastern States prior to the Federal codes of the 1930's, unquestionably meant lower labor costs and, other things being equal, a lower cost of producing yarn and cloth in the mills of this region.[24] Since the rapid growth of the cotton tex-

[23] See U. S. Bureau of Labor Statistics, Bulletin No. 492 for average hourly and weekly earnings in cotton textile mills by States. Also *Monthly Labor Review*, March 1935, pp. 617, 722 and May 1935, pp. 1, 173.

[24] In the 1920's the average workweek in the mills of this region was 55-56 hours, compared to 48-54 in New England mills. Single shifts prevailed in New England, while double shifts were common in this region. Double shifts cause an appreciable lowering of the cost of production through more complete use of plant and machinery and other reductions in overhead costs.

tile industry in this region occurred during the period between 1910 and 1930, when the differential in labor costs was at its greatest, it may be concluded that low wages had considerable influence in determining the location of this industry. By 1932, the wage-cost differential was down to about one-fourth. Since then, it has been more greatly reduced, if not removed, by the effects of Federal legislation.

Whether or not low wages are to remain an allure to industry in the Southeast is more difficult to determine. The original oversupply of unskilled labor, absorbed first into the construction and later into the production phases of war work, by the beginning of 1942 was receiving and rapidly responding to industrial training. This fact, with the long-range effects of the Federal Fair Labor Standards Act in elevating labor standards where they are abnormally below standard, and the growth of unionization which works toward the same end, apparently foreshadowed a decline in low-wage-scale "advantage." Wage scales, however, are to be distinguished from labor costs, and the results of the newly trained skills may be such as to raise wages while reducing total labor costs in certain types of manufacturing. It appears that the locational pull of the Southeast is shifting, as is desirable, from a merely cheap labor supply to a genuinely productive one. A recent tendency to break down highly skilled labor requirements into simpler components to be apportioned to semiskilled operatives,[25] plus the development of more specialized and automatic machines and the new skills trained for war work, all should favor the Southeastern region in its appeal to industry in general.

The Regional Market

As an influence on industrial location, markets may be classified as (*a*) business goods markets, for the sale of goods which will continue in the productive process and are bought by other business firms or producers, and (*b*) consumer markets, for the sale of goods that are consumed directly or are otherwise removed from further marketing consideration. Nearness to such markets may be an advantage.

Most Southeastern manufacturing is done for the business goods market, which is principally outside the region. Fertilizer plants, the product of which is sold to the farmers, have evidently been placed in the Southeast because the market was adjacent; but these are on the whole exceptional. The textile plants producing gray goods or some other unfinished product; the raw or semifinished iron, lumber and pulp production; the branch plants which transfer their output to some other distant unit of the same parent concern—these are of the prevailing types of the region's manufacture; and in such cases the nearness to market has evidently not been a consideration. Indeed, the distance from market may have been a negative factor, to be overcome by low wage costs or some other cost saving.

This region notably lacks facilities to supply materials, equipment and parts to manufacturing, service, trade and construction establishments. Lumber for local construction, and turpentine cups for the naval stores industry, are minor exceptions. Except in the case of branch plants, whose distant central administrations may be able to purchase such equipment and supplies at a sufficient advantage to overcome their transportation costs, this condition may be attributed to the easier, though not in the long run cheaper, practice of importing such goods rather than reorganizing for their production nearer to the business market.

The consumer goods market is even more meagerly supplied from this region's manufacturing output. There are no reliable figures as to the kinds and values of consumer goods which are imported, but the general failure to supply this market becomes obvious when the narrow range of the local manufactures is compared with the variety of imported consumer goods. This deficiency goes back to several fundamental causes. A consumer market may or may not create an adjacent consumer goods manufacturing structure, depending upon the peculiarities or habits of the consumer demand, amount and dependability of the buying power of the market, the differential in transportation costs, and the sheer trouble, costs and risks of substituting new supply sources for the old even if price advantages are apparent.

The Southeastern consumer market has few specialized demands that are not at present satisfactorily supplied by standard imported products. The average

TABLE XIX.—*Total and per capita income by States in the Southeast region and in the United States, 1929 and 1939* [1]

	Total income		Per capita income		Percent decrease
	1939	1929	1939	1929	
United States	$70,700,000,000	$83,534,000,000	[2] $537	[2] $679	21
Region	5,307,000,000	5,534,000,000	[2] 288	[2] 334	14
Alabama	686,000,000	856,000,000	243	326	25
Florida	843,000,000	739,000,000	457	516	11
Georgia	905,000,000	969,000,000	292	333	12
Mississippi	441,000,000	546,000,000	203	274	26
North Carolina	1,068,000,000	1,017,000,000	302	325	7
South Carolina	508,000,000	475,000,000	268	274	2
Tennessee	856,000,000	932,000,000	296	359	18

[1] Source: U. S. Department of Commerce, *Survey of Current Business*, October 1940.
[2] Population figures for 1940 and 1930 used to obtain these figures.

[25] See the testimony in vol. 30 of *Hearings before the Temporary National Economic Committee*, April 1940, of Edsel Ford (pp. 16, 343), J. P. Carey (pp. 16, 738), (pp. 17, 415), Emil Rieve (pp. 16, 851) and Corrington Gill (pp. 17, 232). See also Charles A. Koepke and S. Theodore Woal, *Changes in Machinery and Job Requirements in Minnesota Manufacturing, 1931-36*, University of Minnesota and WPA National Research Project, 1939.

buying power of the market has long been notoriously low. This is probably the major reason why new consumer industries have not been located more abundantly in the Southeast. Table XIX summarizes this condition.

Since the average income for the Southeastern States declined much less rapidly during the 1930's than that of the Nation, the regional consumer market has shown an increasing advantage by comparison, even prior to the period of wartime expansion. Moreover, the use of averages to express consumer buying power in the Southeast is misleading. Without including the potential market provided by the great number of persons whose lack of cash income has always rendered their demands ineffective, there remains a large market consisting of those with normally effective demand and reasonably stable income who would undoubtedly support additional local industries.

Transportation costs have an important influence on the regional market. On the one hand, the importation of consumer goods increases the price load, an unduly large part of the consumer's dollar going to the common carriers. In food costs in September 1940, for example, Jacksonville, Fla., ranked highest in the Nation except for New York, and Birmingham, Ala., was tenth among the cities. On the other hand, the National railroad rate structure so operates as to make it in many cases as expensive to ship consumer goods from one part of this region to another, as to bring them in from outside the region. So the transportation cost factor in prices presents a dilemma, only to be relieved by a change in the theory of class freight rates. A potential price advantage to the regional consumer-goods industries depends largely upon rate readjustment.

Finally, the investment risks and difficulties involved in substituting intraregional for extraregional consumer-goods production must not be underestimated. Finance has been hesitant to venture, promotion has been slow to urge, participation in local enterprises, for several reasons: the handicap of the freight-rate structure; the reluctance of capital and entrepreneuring throughout the Nation during the depression years; and the inertia of vested interests and habits. The Southeast, in failing to supply its own consumer-goods market, suffers under a distinct economic handicap.

Fuel, Power and Transportation

There are some industries in which these are a strong locational factor. The iron smelting industry is drawn toward its fuel supply—coking coal. The aluminum industry is peculiarly anchored to electric power. Cheap transportation facilities, such as waterways, are of importance to industries having a heavy transportation burden; for example, oil refineries find economies in locations near the oceans and Great Lakes, and sugar refineries are frequently found in seaboard cities. Obviously, among different industries, the importance of such costs varies.

In all three respects, the Southeast possesses location advantages for those industries in which such advantages may be of weight. Coal and metal mining have had much to do with the establishment of the iron center at Birmingham and of the stove and other metal-using industries in the tri-State area around Chattanooga. More recently, a general development has been hastened by the power supply and low power rates of the Tennessee Valley Authority.[26] (In connection with war production, the region's abundant power supply has formed the basis for aluminum, and munitions and shipyard production.) The inland waterway system of Alabama and the waterways along the Atlantic and Gulf coasts have proved of advantage to various industries. These factors should prove increasingly influential upon industrial location as trade with Central and South America further develops.

The railroad freight-rate structure, however, has long been recognized by the Southern Governors' Conference and other authorities as having a restrictive effect upon Southeastern manufacturing and especially as tending to keep this region's industries in a semi-finishing or "colonial" status.

The investor wanting to set up a plant in this region for the production of high-value products is confronted with a class freight-rate structure which will automatically keep him out of half the Nation's markets and even out of the more distant markets within the region.

With the development of the railroads, there grew up a regionalized rate structure characterized by a separate and distinct level of class rates for each territory. One territory, the Southern, contains the 7 States of this region, plus Kentucky. This territory adjoins the Official Territory, which embraces roughly the northern half of the United States east of the Mississippi. Official Territory has the lowest level of rates in the country on manufactured products. Southern Territory has high rates on manufactured products, and low rates on raw or semifinished materials.[27]

Historically, the development of the regionalized class rate structure is supposed to have been based upon differentials in the cost of railroad operation, the longer hauls and lighter population in some territories necessi-

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[26] For a full discussion of this region's marked advantage in hydroelectric power development and supply, see chapter, "*Water Resources Development*," above.

[27] This is possible because the class rate may not apply where commodity rates (a special rate on a special article) are set up to care for competitive conditions and are in effect primarily to encourage the movement of bulky and less valuable freight long distances.

tating higher rates in order to meet those costs. The Southern carriers to this day are allowed more than a proportionate share in the return on freight moving both in Southern and Official Territory. But time has removed whatever basis originally existed for this differential; in fact, the showing is reversed. Indexing as 100 the costs of transporting freight in the Eastern District—a statistical reporting unit roughly comparable with the Official Territory—recent figures show the costs in the Southern District to be only 95.8, on a gross ton-mile basis, and 92.3 on a loaded car-mile basis.[28] But although the argument is removed, the rate structure persists.

Accordingly, when the would-be manufacturer in Southern Territory considers sending goods across the boundary into Official Territory (which contains 51 percent of the Nation's people), he faces a relative disadvantage of 39 percent in the charges which he must pay as compared with similar shipments entirely within Official Territory.

This situation leaves the Southeast with its economy frozen in a form which (1) drains raw materials and partly finished products to the Northeast, (2) makes this region pay two-way freight on its purchased manufactured goods, and (3) stifles the development of manufacturing industries of the more refined types within the region.[29]

It is obvious that the preponderance of semifinished manufacturing in this region has a freight rate as well as a branch plant basis. As an influence upon industrial location, the railroad rate structure tends to counteract the advantages offered by a superior power and fuel supply.

Finance as a Factor in Location

The financial ability of a given area does not always affect the actual investment in the industries of that area. New industries, especially those of the larger type, may be quite independent of local financing or savings supply. The national banking and investment machinery operates to shift capital to where it is needed, or, as in the case of many branch plants, the parent organizations have ample reserves for expansion without calling upon the financial services. A large part of the manufacturing industry of the Southeast has been financed without regard to the presence or absence of local savings or credit capacity.

Even as to large concerns, however, this has not been invariably the case. Some States,[30] cities, and even small communities have set out to attract new industries by offering inducements such as gifts of ground, tax concessions, and outright donations of locally gathered funds as an aid in building or equipping private plants. Some of the largest and richest corporations in the Nation have not hesitated to take advantage of these subsidies, even when Southeastern communities could ill afford them. The practice is almost universally disapproved by authorities on taxation. While instances are numerous in which communities have been benefited by permanent payroll, there are other instances in which the industry was coming into the general area in any case, but sought an added advantage by engendering bidding by rival communities. In other instances, the industries so attracted have been of the migratory rather than the worth-while or permanent type; some have been unable for sound economic reasons to survive, others have departed when the tax-exemption period or other form of subsidy expired. The costs of added municipal services brought about by new industries must be written against the income from payroll, and for these costs the general taxpayer is liable.

The cotton textile industry, especially in the coarser grades, was attracted to the southern Piedmont in the 1920's primarily by labor-cost factors, as already noted. But during this period this industry was aided by a saving in taxes in southern as against northern locations. The percentage of their gross sales paid by cotton textile corporations for taxes (other than income taxes) were on the average as follows: [31]

Year:	*In North*	*In South*
1926	2.06	1.18
1927	1.90	1.47
1928	1.95	1.37
1929	1.77	1.29
1930	2.26	1.75

Local out-lays for inducement purposes might have been used to better advantage in the founding of new, independent enterprises of local ownership and control. A relatively modest investment, if available to qualified management, may give rise to a new industry based upon local or regional resources and markets and having the character of an indigenous community asset.

In former years, the Southeast had little or no savings for local investment. However, regional savings have been increasing recently, despite the influence of branch plants previously described, especially since the inflow of national defense expenditures. As one indication, total bank deposits, exclusive of interbank deposits, in the Sixth Federal Reserve District (Atlanta), which covers most of the region here considered,

[28] *Freight Rate Discriminations*, Hearings before a Sub-Committee of the Committee on Interstate Commerce, U. S. Senate, 76th Cong., 1st sess., 1939.

[29] For a thorough analysis of this problem see *Interterritorial Freight Rates*, a study by the Tennessee Valley Authority, H. Doc. 264, 75th Cong., 1st sess., 1937.

[30] The Mississippi Industrial Fund is an outstanding case in point.

[31] The President's Cabinet Committee, *A Report on the Conditions and Problems of the Cotton Textile Industry*, S. Doc. 126, 74th Cong., 1st sess., Government Printing Office, 1935.

amounted to $1,330,000,000 in October 1940 and 18 months later had risen to $1,772,000,000. Both figures were the highest on record up to those dates. There have been other indications to the same effect, including a fairly vigorous brokerage business selling listed securities,[32] and considerable regional investment in various forms of insurance. In brief, while the Southeast certainly is not among the richer sections of the Nation in respect of savings, its capacity for financing business and industrial developments has increased.

Savings, however, have had little influence as a locational factor, largely because the course of their flow has rarely been directed toward new local industries. The region is lacking in any form of financial institution devoted to the task of developing new industries. The rival investment in national securities is actively fostered by institutions existing for that purpose, and there is a tendency for southern savings to flow away from the Southeast rather than to be applied to the industrial expansion of the region. Thus, the financial structure has played its part in the region's failure to develop the normal proportion of independent industries, as shown in table IX.

Summary of Locational Considerations

1. The natural resources and raw materials of the region exert a drawing power for certain types of manufacturing, not now developed, including especially the higher branches of the textile and of the wood industries; more food manufacturing as diversified agriculture develops; increases in iron, steel, clays, and aluminum, and finished products based thereon.

2. The large reservoir of unskilled and semiskilled labor in this region will continue to attract industries using relatively large amounts of such labor. The current advancement in labor skills has untold possibilities for industries of higher type. The war effort has demonstrated that there are few skills of which Southeastern labor, with training, is incapable.

3. Markets have not been in the past a strong drawing force to this region, but the regional market for business or producers' goods should grow with industrialization and should stimulate the establishment of new satellite industries, clustering around main plants. With a greater industrialization and hence rising incomes, the market for consumer goods and services should expand; the residentiary industries should expand correspondingly.

4. Fuel, cheap and abundant water power, and water transportation, reinforcing other factors, should attract or develop new manufacturing. Railroad rates are a negative factor, requiring revisions.

5. Financial factors, especially initial capital accomodations, have been of minor locational significance in attracting branch or other absentee-owned plants, but have been important in restricting new home industries. Financial concessions by State or local governments representing subsidies at the expense of the taxpayers have proved undesirable save in those exceptional cases where they have attracted sound well-managed enterprises. Institutional provision for applying regional savings to the founding of new manufacturing enterprises under local control is greatly needed in the Southeast, where savings are increasing without attractive investment outlets.

RECOMMENDATIONS

The bases of future business and industrial planning in the Southeast have been set forth above. Others are to be found further developed in the sections on Physical and Human Resources, on Agriculture, Water Resources, Health, Housing, and other fields which bear closely upon industrial development.

Recommended lines of action require, primarily, the activity of regional private enterprise and individual initiative to be put to effective use. The basic economic and social trends have called for and favored the greater industrial development of the Southeastern region, and the agencies of government at all levels are interested in these trends. For the past decade or more, Southern problems in respect to the plight of the cotton economy, the large rural population, the average low income level, the poverty, ill-health, and malnutrition of a considerable portion of the people, have been so discussed and publicized as to cause the Southeast to be considered this Nation's principal economic problem. While the services of governments, whether local, State or Federal, have been called upon to alleviate particular situations, the over-all and lasting remedy—the better gearing of the economy to its work of translating regional resources into terms of human welfare—must come through a series of adjustments, investments, and progressive developments in the private economic field.

At the outset it was stated that the effects of the war production and training effort upon the economy of the Southeast could not be wholly appraised at this time. Benefits already apparent include the construction of large new plants; agricultural diversification; the increases in employment, industrial experience, and labor skills; and the growth of regional savings. On the other hand, the prospect of post-war transition of production

[32] Atlanta supports more than 20 brokerage and investment-banking firms; others are in Birmingham, Nashville, and various cities of the region.

from military to civilian consumer goods foreshadows a period for which private industry, no less than government, is challenged to plan.

Desirable Industrial Types

A loose growth of any or all forms of industry would not be desirable. Sound planning requires that the industries to be developed should contribute to the adjustments required for a balanced economy and integrate soundly into the regional and national economy. Some of the broad criteria to be met in further regional development of manufacturing are as follows:

1. A high percentage of value added by manufacture to the initial value of the materials.
2. A high proportion of the more skilled types of labor within the total labor requirement.
3. Wages in relatively high ratio to material costs and other costs.

These three characteristics, taken together, are not those of heavily mechanized mass-producing industries on the one hand, or of the more rudimentary manufacturing on the other. Rather, they are outstanding traits of that broad middle sector of manufacturing which operates in medium-sized plants, produces finished or nearly finished goods, and not infrequently specializes in quality of production instead of facing bulk competition. Plants in this category are well mechanized, but not supermechanized, and the labor factor in their production is important. In the early stages of their development, such manufacturing establishments are frequently small, and they may start as individual proprietorships. Their growth is in many cases dependent upon considerations of quality.

The above may be termed internal characteristics. As to external characteristics, the following are desirable in the region's new industries:

4. A close relationship to the regional resources, hence creating employment in the production of industrial raw materials.
5. A close relationship to the consumer needs and market demands of the surrounding region, thus relying upon export markets only in minor part.
6. Regional ownership and direction, having a close interest in regional betterment in the broader sense.

Furthermore, greater desirability attaches to those industries which utilize the replaceable type of raw materials than to those which utilize the wasting-asset type. Industries processing agricultural products which can be renewed year by year without detriment to the soil have a greater survival value in respect to material supply than any other type of industry. The wood-processing industries are also of this type, if pains are taken to conserve the timber supply; otherwise they are, like industries based upon mined products, of the wasting-asset type.

The fifth criterion would benefit price levels and increase the value of the regional dollar. The sixth would have a like effect in weakening the hold of the administered-price situation covering imported products. The advantages of conserving industrial profits within the region, and of regional self-determination of its industries, have been discussed.

Industries Arising From Agriculture.—By these criteria of desirability, the industries arising from agricultural production (forest products included) rank high in most respects. Whether or not employment of the more skilled types of labor (No. 2 in the list of standards) and seasonality of employment are characteristic, the processing of farm products is the type of industry most natural to this region, capable of a large and versatile development.

Concurrent changes in agricultural practices, as recommended in the chapter, "Agricultural Development," to conserve and improve soil resources and to raise farm income not only permit but in many cases require the establishment of processing industries. For example, in Alabama, long-term desirable farm adjustments include greatly increased acreages of potatoes, grains, pasturage, soybeans, hay, and vegetables, and greatly increased numbers of milch cows, beef cattle, poultry, and sheep. These imply such processing industries as industrial alcohol; the wide variety of soybean products; sweetpotato fertilizer; cheese and butter making; confectionery; canning and preserving of meats, fruits, and vegetables; meat packing; egg drying; wool processing. For Florida, additional acreages of corn, peanuts, sweet and Irish potatoes, and additional livestock suggest corn sugar and other corn products, oil, fertilizer from sweet potatoes, cheese, dairying and meat packing, condensed and evaporated milk. For Georgia, and the Carolinas and Tennessee, the story is much the same. Without new industries to which the farmer may sell, farming itself cannot readily change.

The establishment of the above types of industry, in relatively small units, throughout the region is the first and foremost recommendation. Industrial innovations and farm innovations must move together. The farmer hesitates to abandon cotton because he has no industrial market for more desirable crops, while industry hesitates to put in a soybean plant because the farmers are not raising soybeans. In practice, neither can come first; planning must therefore provide some method by which both aspects of the needed development are simultaneous. The farmer, the industrialist and the financier must work together.

Industries Based Upon Lumber Products.—These have

desirable features akin to those of agriculture. Some development has already occurred, but an increased number of industrial plants is recommended as follows:

Baskets, rattan, willowware; Boxes; Paper and paperboard; Newsprint; Plywood and veneer; Furniture; Woodpreserving.

Industries Based Upon Mineral Products.—While minerals are wasting assets, some are relatively abundant in this region. Industries processing metals may be divided into two groups, those supplying the market for consumer goods, and those supplying equipment, machinery, or materials to other industries. This region has a considerable cast-iron pipe industry and stove industry; accordingly these are omitted from the following list. Items in the list may be to some extent already represented, but their expansion or elaboration into new forms is desirable. Some of the nationally established industries, such as automobile manufacture and patented plastics, could exist in the Southeast, but the decision as to whether they are established there would not lie wholly inside the region; hence they are omitted from the list which follows:

Agricultural implements and equipment; aluminum and its products; building accessories; chemicals;[33] concrete products; machinery;[34] pottery; shipbuilding; structural steel; tools; clay products; machine-shop products.

Industries to Balance Textile Production.—The presence in this region of a large textile industry producing mainly preliminary products suggests a rounding-out of that industry by the inclusion of new processing features emphasizing higher quality of product, and the further development of existing facilities, which would include:

Awnings, tents, sails, canvas; clothing, men's and boys'; clothing, women's; cordage and twine; house dresses—aprons; knitted underwear; woolen and worsted manufacture; dyeing and finishing of textiles.

Miscellaneous Manufactures.—There is, finally, a considerable list of "footloose" industries which might with some advantage be located in this region, but which need not here be specified. In this connection, the suggestions of individual entrepreneurs of the industrial "promoter" type not infrequently possess merit, and should be carefully examined. Implicit in the above listings is the general development of "satellite" industries surrounding the textile, steel, lumber, and other central industries, as well as agriculture.

The above recommendations are to be regarded as suggestive, not comprehensive; table VIII–B may be consulted for a fairly complete listing.

[33] The range of modern chemicals is so broad that no attempt is made to specify particular chemical products.

[34] Especially textile machinery.

Aids to Industrial Development

Research.—The Southeast has benefited greatly from industrial research. Its largest industrial acquisition of recent years, the pulp-paper industry, stemmed largely from the research work on southern pine by Dr. Charles Herty at Savannah, Ga.

In view of the region's variety of mineral resources and agricultural products for which industrial uses may be found, and the abundance of electrical energy available to process them, it is recommended that strong support be given by private enterprise and by government to programs of industrial research.

Research programs are functioning at present in the agricultural and engineering experiment stations of the land-grant colleges, in the various States, in the Tennessee Valley Authority, the Regional Research Laboratory of the United States Bureau of Agricultural Chemistry and Engineering at New Orleans, the Southern Forest Experiment Station of the United States Forest Service at New Orleans and its several branches, the Naval Stores Experiment Station of the United States Bureau of Agricultural Chemistry and Engineering at Olustee, Fla., and in a number of industrial and trade associations, notably in the field of naval stores, lumber, and pulp-paper.

In the absence of a State agency directly charged with industrial development, it is recommended that State planning boards undertake an inventory of the nature and status of industrial-research projects in their States, and that such inventories be revised periodically. Insofar as publication does not conflict with the conduct of the research, information thus secured should be circulated among the agencies and organizations conducting such projects, and among bankers, businessmen, and industrial promotion agencies. Business organizations and legislative bodies should assist in the financial support of such research.

Selective Promotion.—What the region needs, concretely, is a considerable number of new manufacturing plants, selected as to type, wisely located, sound in managerial standards, and in good position as to capital and markets. This cannot be left to chance. Some form of organization of the industrial birth-process suggests itself as a medium of effective planning. Unity of concept and action among the various promotional forces of the region should be an objective.

It is recommended accordingly that industrial-research organizations, industrial-promotion agencies of power companies and railroads, industrial departments of banks, local chambers of commerce, State planning boards and industrial commissions, and other similar agencies, consider plans to collaborate more closely in working out selective industrial-development programs

for the areas with which they are concerned, and for the region.

Finance.—The initial capitalization of new industries presents a difficult problem, one which this Nation has not satisfactorily solved. The high element of risk and venture attaching to new industries places this function outside the purview of banks or investment houses. Most present-day industries and businesses were launched by the risking of personal savings of individuals, upon the ideas of inventors, or entrepreneurs. This method, always haphazard and planless, left the survival of the industry primarily to time and chance, and incurred a high mortality rate, especially among new industries in the first 3 years of life. The depression of the 1930's administered a serious set-back to this industrial "volunteering," but as yet no systematic substitute, involving a special form of financial institution designed to supply initial capital and credit to new industries, has been developed.[35]

A "capital bank" to foster new industries and aid small business has been often suggested as a Federal activity, and bills to establish such a bank have been introduced in Congress, but not passed; meanwhile, the obvious need of institutional provision for the financing of sound new industries has brought about certain interesting, if limited, experiments on the part of private capital.[36] Some principles thus developed seem applicable to the forming of a "Venture Foundation" of regional scope, of the order of an investment company, but with a broad multiplicity of small industrials in its "portfolio," and administered with a view to ultimate and long-term, rather than immediate, profits. The general standards for such a financing organization may here be set forth, the recommendation in this respect being limited to further discussion and study on the part of financial and community leaders:

1. Formation of a fund by subscriptions, limited in amount, from individuals and corporations throughout the region or a large subarea.
2. A sufficiently large fund to finance a wide variety of small and medium-sized risks and to employ the basic principle of a broad "spread of risks" (the principle of a department-store operation, or insurance).
3. The function of initiating or receiving entrepreneurial suggestions for new industries within the region.
4. The function of expert appraisal, with governmental, statistical, research, and private aids, of the prospects of such proposed ventures, so as to reduce as far as possible the element of risk.
5. Initial capitalization of the selected new developments from the fund under (1).
6. Provision of additional expansion and working capital to aid the industries from time to time.
7. Business advice and guidance to the managements of the financed enterprises, on an advisory basis.
8. Restraint upon profit withdrawals and interest charges, especially during the early formative period of enterprises.
9. Losses to be absorbed on the principle of "the good paying for the bad."
10. Provision for gradual repayment by the industries of sums withdrawn and debits incurred, so that at the end of the amortization period the fund may be replenished and the businesses which have been financed may proceed as independent enterprises.

An institution of this general nature is believed to have potentialities as the financial instrumentality for regional industrial planning. It is also believed that ample capital for this purpose now exists in the Southeast, lacking principally an established medium for intraregional investment. The experience of one small fund along these general lines [37] in establishing 23 new industrial concerns—6 of which attained marked success and growth, 9 of which had a normal survival, and 8 of which were liquidated with whole or partial loss—by a total outlay of less than $2,000,000 and with a net gain to most participating individuals is appropriate to the discussion which is recommended.

Conversion of War Production Plants.—In connection with the war effort, this region has acquired a large new industrial plant capacity for use in bag, fuze, shell loading, powder, ship, and ordnance production. It is recommended that the industrial operators, and the communities and States of this region, collaborate in preparing plans for the conversion of these facilities to peacetime uses.

Occupational Training.—In organizing school facilities for defense industrial training, the region has acquired an educational machinery of unique importance to its long-range needs. That machinery holds real promise in (*a*) keeping vocational training curricula in harmony with actual business and industrial needs, and (*b*) starting and maintaining a flow of trainees from the classrooms and shops into individual employment.

It is, therefore, recommended that State and local

[35] For full discussion see *Hearings of the Temporary National Economic Committee*, pt. 9, 1939, Savings and Investment, pp. 3669–3902.

[36] *Ibid.*, testimony of Adolph A. Berle, Jr., pp. 3809–3885 and M. B. Hicks, on Wyoming Valley Industrial Fund, pp. 3945–3964; also Cover, John A. and others, "Problems of Small Business," Temporary National Economic Committee, Monograph No. 17, 1941, pp. 356–370.

[37] See *ibid.*, pp. 356–362.

school authorities cooperating with the National Youth Administration, the United States Office of Education and the United States Employment Service, seek to carry over into the post-war period the educational organization, techniques, and working relationships thus developed, and that the Federal agencies involved collaborate in securing this carry-over.

Revision of the Freight-Rate Structure.—Revision of the freight-rate structure being a necessity of this region's development along favorable lines, such revision by the Interstate Commerce Commission is strongly recommended. Specifically, this involves adjustment of the freight-rate structure by relating the general level of rates to the actual cost of rendering transportation service. Attention is also called to the often recommended "destination rule," which would amend existing law to provide that rates applying from one rate territory to another shall be no higher, mile for mile, than the level of similar rates within the territory to which the traffic is destined. Study should be given to the suggestion that section 3, table I, of the Interstate Commerce Act be amended to make it apply to discriminations between regions and territories.

The machinery for bringing about the required changes has already been put in operation. Two thorough reports by the TVA set the scene, the Southern Governor's Conference in their case before the Interstate Commerce Commission carried out some successful preliminary efforts, Senators and Congressmen from the Southern States have introduced corrective measures, and the ICC itself is now moving to reconsider the whole problem of the regionalized rate structure.[38] It is earnestly recommended that consideration of adjustment on the basis of costs, the "destination rule," and the amendment of section 3 of the Interstate Commerce Act be accelerated and brought to a conclusion in advance of the post-war period.

The Need of a Social Approach

Finally, there is the necessity for building up the underlying social factors in industry. The general level of health, intelligence, and efficiency of the local population is important in fostering or frustrating the worth-while types of industry; hence good schools, well-administered public and private health facilities, housing betterment, dietary improvement, and other factors of progress for the entire population should have emphasis and support. Negroes must be trained and allowed to enter an ever wider range of occupations. Ambition, initiative, and skill are qualities upon which industry ultimately depends. In the last analysis the region must take the chief responsibility for its own development as a substitute for outside promotion and control.

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[38] See Frank L. Barton, "The Interstate Commerce Commission Considers the Class-Rate Structure," *The Journal of Land and Public Utility Economics* February 1941, pp. 10-18.

EDUCATIONAL DEVELOPMENT[1]

In the early days of our national life the purpose of education was to pass on accumulated knowledge. The Southeast placed particular emphasis upon this concept of education, and its program of education consisted almost wholly in learning the classics and storing knowledge concerning the thoughts and events of the past. More recently education has been engaged in preparing children to earn a living and adjust to a changing world. While this kind of education is a radical departure from the purely transmissive process, it failed to prepare youth for living and working together and left the course of societal development to chance. Education is now being increasingly conceived of as an effort to direct the course of the future by the use of reason and will. Education thus defined does not neglect the past but examines it as a basis for understanding the present and the future. Nor does education directed to controling the course of social change neglect the necessity for technical training as a means for earning a living and utilizing our physical resources. It does this and something more—it anticipates the future by training persons to understand the course of societal change and to develop methods for partially controling that change.

Reciprocal Relationship of Education and Planning

This new concept of education emphasizes the reciprocal relationship between education and planning. When education sets as its goal "direction of the course of the future," it becomes a responsible contributor to the planning movement. Its principal responsibility is at once apparent—to create a clear popular understanding of planning as well as a high level of trained technicians to do research and to formulate and execute plans for the orderly change and progress of society. But for education to perform this task effectively it in turn must be adequately provided for in any large-scale social and economic planning that is undertaken. The problem of where to begin should not disturb. Both education and planning must be undertaken simultaneously.

It is education's opportunity to undertake the task of directing study of planning, its objectives, its basis in research, its techniques, and its value. A principal concern of education is those attitudes which relate to the reconstruction and progressive improvement of society—to planning. Moreover the technical leadership demanded by planning must be developed by our educational institutions. This leadership, to be effective, must not only be able to formulate plans that are scientifically sound; it must also be able to present these plans so that they win the intelligent acceptance of the public.

For education to accomplish these objectives, the conventional curriculum of public schools, colleges, and universities must be greatly modified to include the study of health, housing, natural resources and their conservation, the economic system and its relation to the average citizens. The schools and colleges should develop curricula whose *modus operandi* would teach planning not as mere theory but as theory combined with action. The planning process and good educational method are closely related. The stages of planning are: (1) fact finding; (2) the study of facts in relation to social ideals; (3) drafting of the plan for community reconstruction and formulation of methods of achieving it; (4) intelligent absorption by the community of the plans and their translation into action. These stages are thoroughly adaptable to the school curriculum and call for study, value judgments, and action which are perfectly harmonious with the best educational theory and procedure. While students at different educational levels would necessarily participate in the several stages of planning with varying degrees of intensity, some aspect of each stage would constitute curricula experience for almost every level of education from the early elementary grades through the university.

The Pacific Northwest provides an example of the far-reaching effects of the effort to bring education

[1] The Southern States Work-Conference on School Administrative Problems, a representative group of educational administrators from 14 Southern States, has been engaged in the preparation of an educational plan for the South during the past several years. In the course of its work, the Work-Conference has developed and published sections of a rounded plan in a series of technical bulletins. The Work-Conference, through its Executive Committee, has associated itself with the Southeastern Regional Planning Commission for the purpose of collaborating with the latter in the educational aspects of its regional planning program. This section on Educational Development incorporated in this report is taken directly from monographs prepared by various Committees of the Work-Conference and published originally in its bulletins. The section was prepared by Dr. Frank D. Alexander, Planning Technician, Atlanta Field Office, National Resources Planning Board, in collaboration with the Executive Committee of the Work-Conference. The following are the bulletins which were used principally in preparing the section: *State and Local Financing of Schools*, Bulletin No. 1, 1941; *Administration of State Curricular Programs*, Bulletin No. 5, 1941; *Negro Education*, Bulletin No. 6, 1941; *Continuity of Service for Teachers in Southern States*, 1940, Tallahassee, Florida.

It should be pointed out that educational leaders over the Nation are not in full agreement on a number of educational policies and practices; this is particularly true with respect to the relationship of the Federal Government to public education. The policies and practices which are suggested herein are those which are supported by the Southern States Work-Conference on School Administrative Problems and consequently represent points of view which are likely to influence fundamentally the direction of educational development in the Southeast.

and planning together. A cooperative agency, the Northwest Regional Council, made up of laymen, educators, and planners and supported by the philanthropy of a large foundation, seeks to bring the schools and colleges into the heart of the planning activities of that region. Some of the major problems of the region are stabilization of the lumber industry, control of soil erosion in the great wheat and cattle areas, development and distribution of hydroelectric power, absorption of great armies of unemployed workers and their families from other sections of the nation, development of recreational facilities. The task of coordinating these and related problems is a tremendous but challenging job. The Northwest Regional Council acts as the liaison between educational institutions and planning activities. The Council aids teachers' colleges in offering courses on the region and planning; it assists teachers' organizations in conducting study programs focused on regional problems; it prepares instructional material for the schools; and it works with school and college committees to place the problems of the region in a more prominent position in the curriculum.

In a compendium of studies dealing with action programs in agriculture, business and industry, health, forestry, housing, etc., education rightfully serves as catalytic agent for planning. The forces of education must translate into the thinking and activities of citizens in the Southeast the best technical planning of experts in these varied fields, but to do this effectively planning for education is a necessary first step.

Planning for Education

Not until this century did planning for elementary and secondary schools receive much support. Colleges and universities were somewhat better off in regard to long-range planning; the land-grant college provisions illustrate the point. Within the century, education has found recognition as a profession. With a better trained leadership, communities and States are planning their educational programs on a scientific basis and in the direction of continuous improvement. Extensive studies of school needs have been and are being made. Machinery for the elimination of shortages has been created. While some States have used the survey technique, the more intensive surveys of educational needs have been made by cities. Building surveys, curriculum surveys, financial studies and the like have become accepted technique for solving educational problems in American cities.

The general objectives of educational planning can be stated simply: (1) to provide an opportunity for free education to all the people and to spread that opportunity evenly over the entire Nation; (2) to spread the burden of financing education fairly in terms of ability to pay; (3) to provide a curriculum that will develop the essential qualities of good democratic citizenship; (4) to provide a curriculum that will develop the special skills and aptitudes needed in our modern science-using culture; and (5) to provide a curriculum that will nurture in each individual his own unique qualities and purposes.

One guiding principle of educational planning has been generally agreed upon by American communities. That principal is local control of education. While final authority for policy making rests with the local school board, the technical task of planning should be delegated to those who are qualified. [2]

The Status and Trends of Education [3]

The Southeastern States had in 1940, 5,020,737 children of school age (5 to 17 years of age), or 16.9 percent of the Nation's children of that age. On the other hand its population in the so-called productive age group (20 to 64 years of age) was only 12.7 percent of the national total for that age group. The Southeast in 1940 had 46.3 percent of the Negro population of the Nation.

Clearly the Southeast is the seed bed of the Nation's citizens. From it will come in future years much of the migrant population which supplies the urban and industrial areas of the country. The quality of education which these migrants will have will be determined for the most part in the States in which they are born. Thus the areas which will receive these future citizens have a real interest in their educational attainment; the same applies to the Negro who has been moving into other sections of the country in a fairly steady stream during the past decade.

A glance at a few economic indexes will quickly demonstrate that the educational task of the Southeast is excessive in terms of the need and relative ability to meet that need. In 1940 the per capita income of the region was $309 as compared to $573 for the Nation. While the region's average number of wage earners for the year 1939 was 11.5 percent of the national total, their wages were only 7.3 percent of the national total, and the value added by manufacturing was 7.1 percent. On the other hand, the region has 14.0 percent of the Nation's population.

[2] Many of the ideas and facts presented in this introduction were taken from the chapter, "Education and Planning," by Paul R. Hanna in *Planning for America*, George B. Galloway and Associates, Henry Holt & Co., New York, 1941.

[3] Tables II, IV, VII, IX, X, XII, XIII, XV, XVI, XVII, XVIII, and XIX, in this section are largely adaptations either from *State and Local Financing of Schools*, Bulletin No. 1, Southern States Work-Conference on School Administrative Problems, Tallahassee, Fla., 1941, or the mimeographed appendix to this bulletin. In addition, a considerable proportion of the text from page 162 through page 169 is either adapted or quoted directly from the above bulletin No. 1. The following publications of the U. S. Office of Education were also used: *Statistics of State School Systems*, Bulletin 1940, No. 2, ch. II, Biennial Survey of Education in the United States, 1937–1938; and *Biennial Survey of Education*, 1928–1930, Bulletin 1931, No. 20, vol. II.

The Southeast was still predominantly agricultural in 1940 with 44.7 percent of its population classified as rural farm. The percentage of farms operated by tenants was 52.8 in 1940, and the average cash farm income from marketings in that year was $607 for the region as compared to $1,370 for the Nation.

As Odum has pointed out, the South is rich in natural wealth and human wealth but poor in institutional wealth, technological wealth, and capital wealth. Some of the basic causes of these conditions are historically clear. Before 1860, the Southeast had attained a high per capita wealth and income based primarily on an agricultural system supported by slave labor. A great amount of the capital of the region was invested in the form of slaves. This capital was destroyed as a result of the Civil War. In addition many parts of the region were impoverished as a result of military campaigns.

Since 1860, the Southeast has depended largely for its industrial capital on absentee owners or borrowing from the North at high rates of interest. The Reconstruction period severely handicapped the region in its first efforts to recover following the war. With the national policy influenced largely by financial and industrial interests of the North and East, discriminating freight rates have been imposed on the area, retarding industrial development; and high tariffs to protect growing industry have made the southern farmer suffer by forcing him to buy in a protected market and sell in an unprotected one.

In spite of these handicaps the Southeast has made progress in education and has put forth an effort that deserves the commendation of the entire Nation.

Enrollment and Attendance

In 1940 there were 4,495,756 pupils enrolled in the elementary and secondary schools of the Southeast, slightly more than one-sixth of the national enrollment in 1937–38 (table I). Of the 1940 enrollment slightly over one-third was Negro. Between 1930 and 1940 enrollment in public schools in the region increased 6.0 percent. The rate of increase in the Negro enrollment was slightly greater (6.8) than that of the whites (5.5). Between 1930 and 1938 the rate of increase for the region was 3.3 percent as compared to 1.2 for the Nation as a whole. It is quite probable that this differential between the region and Nation has been maintained since 1938. Florida has had the largest rate of increase (14.6 percent) in total enrollment and Mississippi the smallest (2.2 percent). The difference in rate of increase for whites and Negroes in Florida is negligible but in Alabama Negro enrollment has increased by 23.1 percent in the past decade as compared to 4.4 for whites. In Alabama, Georgia, Mississippi, and North Carolina, Negro enrollment has been increasing faster than white. This is to be expected in view of the fact that Negro education in the Southeast has up to recent years been seriously neglected. And even in the past decade Negro enrollment decreased in both South Carolina and Tennessee.

If grades 7 to 12 are designated as high school grades, only 28.5 percent of the total public school enrollment in the Southeast was in these grades in 1940, whereas the figure for the Nation in 1938 was 39.0 percent (table II). Only 16.6 percent of the total Negro enrollment of the Southeast was in the six upper grades in 1940. Florida's high school grades appear to do the best job of holding students with 37.2 percent of the total enrollment in these grades. Mississippi has the poorest record in this respect, largely because of the low proportion (11.4 percent) of its total Negro enrollment in the high school grades. Tennessee has the highest percent (26.1) of its total Negro enrollment in high school.

The greater tendency of youth in the Southeast to drop out of school after completing the first six grades, as compared to the youth in the Nation, is largely a Negro problem although even the proportion (34.6) of

TABLE I.—*Enrollment in public elementary and secondary schools with percent of change: 1930 and 1940*

States	White		Negro		Total		Percent change 1930–40		
	1930	1940	1930	1940	1930	1940	White	Negro	Total
Region	2,823,610	2,980,094	1,418,607	1,515,762	4,242,217	4,495,756	5.5	6.8	6.0
Alabama	428,257	447,109	194,731	239,658	622,988	686,767	4.4	23.1	10.2
Florida	254,575	291,528	91,859	105,460	346,434	396,988	14.5	14.8	14.6
Georgia	468,249	507,555	245,041	273,392	713,290	780,847	8.4	11.6	9.5
Mississippi	302,640	308,883	292,809	299,847	595,449	608,730	2.1	2.4	2.2
North Carolina	607,344	620,415	259,595	272,128	866,939	892,543	2.2	4.8	3.0
South Carolina	248,200	265,845	221,170	215,905	469,370	481,750	7.1	−2.4	2.6
Tennessee	514,345	538,759	113,402	109,372	627,747	648,131	4.7	−3.6	3.2
	1930	1938	1930	1938	1930	1938	Percent change 1930–38		
United States					25,678,015	25,975,108			1.2
Region					4,242,217	4,384,061			3.3

TABLE II.—*Percentage distribution of public school enrollment according to grades; 1939–40*

Area	Percentage distribution					
	Elementary grades 1–6			High-school grades 7–12		
	White	Negro	Total	White	Negro	Total
Region	65.4	83.4	71.5	34.6	16.6	28.5
Alabama	66.2	83.9	72.4	33.8	16.1	27.6
Florida	68.4	75.0	62.8	41.6	25.0	37.2
Georgia	67.5	86.5	74.1	32.5	13.5	25.9
Mississippi	64.5	88.6	76.4	35.5	11.4	23.6
North Carolina	65.8	79.6	70.0	34.2	20.4	30.0
South Carolina	65.5	85.9	74.6	34.5	14.1	25.4
Tennessee	66.6	73.9	67.8	33.4	26.1	32.2
United States 1937–38 [1]			61.0			39.0

[1] United States figures include kindergarten pupils. No kindergarten pupils were reported for the Southeastern States in the 1939–40 data.

whites in high school is less than the proportion (39.0) of all pupils in the Nation (in 1938) who were in the upper six grades.

A national trend in elementary education that has significant implications for educational planning is the decrease in elementary enrollment (grades 1 to 8) resulting from the decline in the number of school-age children. In a smaller degree than in the Nation, the latest figures available show that this trend has also occurred in the Southeast. Thus from 1930 to 1938, there was a loss of 1.7 percent in elementary enrollment in the region with every State, except Alabama and Florida, losing small percentages. The national decline during this period was 7.2 percent. It was in the secondary schools that enrollment increased; in fact the total increase in public school enrollment for both the region and the Nation is a secondary school phenomenon.

The region has made considerable progress in the extent to which school-age children have been drawn into its schools. Between 1900 and 1940 the ratio of the number of children enrolled in elementary and secondary schools to the population 5 to 17 years of age increased 34.2 percent (table III). Georgia's ratio increased by the largest percent(42.9) while Tennessee's showed the smallest increase (14.2 percent). In 1940 South Carolina had the lowest ratio, 857 per 1,000 and Mississippi the highest, 988 per 1,000. Comparative figures for the Nation are available up to 1938. In that year the ratio for the region was 867 per 1,000 compared to 844 for the nation. The rates of increase in the ratios for the Nation and region between 1900 and 1938 were 16.6 percent and 30.0, respectively. Thus, the Southeast is definitely making progress in drawing its children into the schools. It was somewhat behind the Nation in 1900 but by 1938 it had surpassed the Nation as a whole. In fact as far back as 1920, the region's ratio of enrollment to children of school age had surpassed that for the Nation.

TABLE III.—*Ratio of number of children enrolled in public elementary and secondary schools to population 5–17 years of age with percent of change: 1900 and 1940*

Area	1900	1940	Percent change 1900–40
Region	.667	.895	34.2
Alabama	.617	.859	39.2
Florida	.666	.936	40.5
Georgia	.653	.933	42.9
Mississippi	.733	.988	34.8
North Carolina	.636	.869	36.6
South Carolina	.607	.857	41.2
Tennessee	.751	.858	14.2
	1900	1938	Percent change 1900–38
United States	0.724	0.844	16.6
Region	.667	.867	30.0

Since figures are not now available on enrollments in elementary and high schools by races for both 1930 and 1940, it is necessary to turn to average daily attendance to ascertain trends for this detailed analysis. This may be just as well since average daily attendance is probably a more accurate indication of school population than is enrollment. The high school average daily attendance has shown large rates of increase both for whites and Negroes in all States except Georgia. (See table IV.) Florida has had small losses in both its white and Negro elementary school average daily attendance and South Carolina and Tennessee have had small losses in average daily attendance in their Negro elementary schools. The high rates of increase in average daily attendance in Negro high schools is especially noteworthy. In fact in four of the seven States, the percent of increase in the average daily attendance for Negro elementary and high schools com-

TABLE IV.—*Trends in average daily attendance: 1930–40*

Area	White			Negro			Total		
	Percent increase in elementary average daily attendance 1930–40	Percent increase in high school average daily attendance 1930–40	Percent increase in total average daily attendance 1930–40	Percent increase in elementary average daily attendance 1930–40	Percent increase in high school average daily attendance 1930–40	Percent increase in total average daily attendance 1930–40	Percent increase in elementary average daily attendance 1930–40	Percent increase in high school average daily attendance 1930–40	Percent increase in total average daily attendance 1930–40
Region	3.8	45.0	12.6	8.9	120.8	16.7	5.6	54.0	13.6
Alabama	.6	45.9	12.8	24.0	145.8	35.1	9.0	68.9	19.7
Florida	−3.6	89.1	22.0	−3.8	492.8	22.2	−3.9	115.1	22.1
Georgia	6.5	.2	4.8	11.7	3.8	11.0	8.5	.7	6.9
Mississippi	2.0	30.1	7.2	8.1	126.9	10.3	6.2	38.2	8.7
North Carolina	4.5	63.4	15.1	14.1	156.2	9.2	7.4	75.0	17.5
South Carolina	5.6	56.7	15.8	−.9	107.1	4.0	2.4	64.6	10.5
Tennessee	6.4	53.7	12.9	−2.2	91.3	4.1	4.6	57.3	11.4
1930–38									
United States									4.9
Region									10.9

bined has been greater than the white rate of increase for elementary and high schools combined. This is undoubtedly an indication of awakening interest in Negro education. The rate of increase in average daily attendance between 1930 and 1938 was more than twice as great (10.9 percent) for the region as for the Nation (4.9).

An important consideration in connection with school population is the proportion that average daily attendance is of total enrollment. In the region as a whole in 1940, average daily attendance represented 81.4 percent of the total school enrollment; the percentage for whites was 82.7 and for Negroes 78.8 (table V). North Carolina had the best record for daily attendance in relation to enrollment for both races and Georgia the poorest. In 1938 the region's average daily attendance was 81.4 percent of the total enrollment compared to 85.8 percent for the Nation.

TABLE V.—*Percent average daily attendance is of total enrollment according to race; 1939–40*

Area	White	Negro	Total
Region	82.7	78.8	81.4
Alabama	82.8	82.1	82.5
Florida	82.0	82.5	82.1
Georgia	74.7	73.9	74.4
Mississippi	80.0	75.6	77.9
North Carolina	90.3	84.7	88.6
South Carolina	83.8	75.1	79.9
Tennessee	82.9	82.2	82.8
1937–38			
United States			85.8
Region			81.4

Still another important consideration relative to enrollment and average daily attendance is the length of the school term. As shown in table VI, no State in the Southeast had in 1939–40 a school term which was equal in length to the national average of 174 days in 1937–38. In 1940 Mississippi had the shortest school term with the average number of days being 143 and Florida the longest with 168 days. Between 1930 and 1940 the average number of days in the school term increased in each of the Southeastern States for which data were available. The percent of increase ranged from 2.7 in Alabama to 10.9 in South Carolina. The percent of increase for the Nation as a whole was only 0.6 percent between 1930 and 1938.

In every State, except Mississippi, there is a longer high school term than there is elementary school term (table VII). In Mississippi the length of term is the same for both, and almost the same in North Carolina. This situation obtains for both white and Negro schools, but in the case of Florida there is a difference of only one day for Negro elementary and high school terms, while the same is true for North Carolina's white elementary and high school terms. In all of the States, except North Carolina, the Negro schools (elementary and high schools combined) have shorter terms than the white schools. In the case of Florida the difference is not great, and North Carolina has the same length of term for both races.

TABLE VI.—*Average days in school term of elementary and secondary schools (combined) with percent of change: 1930–40*

Area	1930	1940	Percent change 1930–40
Alabama	150	154	2.7
Florida	154	168	9.1
Georgia	148	159	7.4
Mississippi	133	143	7.5
North Carolina	154	164	6.5
South Carolina	147	163	10.9
Tennessee [1]	163		

	1930	1938	Percent change 1930–38
United States	173	174	0.6

[1] No data for Tennessee in 1940.

TABLE VII.—*Average days in school term of Negro and white elementary and secondary schools and of all elementary and secondary schools: 1939–40*

Area	White			Negro			Total		
	Elementary grades	High school	Total	Elementary grades	High school	Total	Elementary grades	High school	Total
Alabama	151	169	157	144	163	147	148	168	154
Florida	167	171	169	164	165	164	166	170	168
Georgia	160	170	165	150	168	155	156	170	159
Mississippi	165	165	165	124	124	124	143	143	143
North Carolina	164	165	164	164	167	164	164	166	164
South Carolina	174	177	175	145	169	147	160	175	163
Tennessee [1]									

[1] No data for Tennessee.

TABLE VIII.—*Number of teachers and principals in elementary and secondary schools and percent of change: 1930 and 1940*

Area	Number		Percent of change 1930–40
	[1] 1930	[1] 1940	
Region	118,020	132,709	12.4
Alabama	16,773	19,780	17.9
Florida	11,085	13,606	22.7
Georgia	19,071	23,170	21.5
Mississippi	16,362	15,397	−5.9
North Carolina	23,622	25,437	7.7
South Carolina	13,412	15,172	13.1
Tennessee	17,695	20,147	13.9

	1930	[1] 1938	Percent of change 1930–38
United States	873,477	913,750	4.6
Region	118,020	133,261	12.9

[1] Excludes supervisors.

Teaching Personnel

The number of teachers and principals in elementary and secondary schools of the Southeast increased 12.4 percent between 1930 and 1940 (table VIII).

TABLE IX.—*Number of pupils enrolled per teacher: 1939–40*

Area	White teaching load	Negro teaching load	Total teaching load
Region	31.4	40.0	33.9
Alabama	31.7	42.3	34.7
Florida	28.3	32.1	29.2
Georgia	31.2	39.5	32.8
Mississippi	34.0	47.5	39.5
North Carolina	33.9	38.2	35.1
South Carolina	27.9	38.1	31.8
Tennessee	31.3	37.2	32.2
1937–38			
United States			28.4
Region			32.7

Between 1930 and 1938 the increase in teachers in the region was 12.9 percent compared to 4.6 for the Nation as a whole. In the 10-year period from 1930 to 1940 only Mississippi showed a loss (5.9 percent) in its teacher force. Florida showed the largest rate of increase (22.7 percent) in number of teachers. Average daily attendance for the entire region between 1930 and 1940 increased at a slightly higher rate than did the teaching force (13.5 percent compared to 12.4). Alabama, Mississippi, and North Carolina had larger percentages of increase in average attendance than in teaching personnel, and in the case of Mississippi and North Carolina the difference was considerable. The other States had higher percentages of increase in teaching personnel than in average daily attendance, but only in the case of Georgia was the difference great. Apparently there is no correlation between increase or decrease in average daily attendance and increase or decrease in teaching personnel.

In 1940 the number of pupils enrolled per teacher was 33.9 for the region (table IX). Mississippi had the largest teaching load (39.5 pupils per teacher), while the smallest load was in Florida (29.2 per teacher). In all of the States, Negro teachers had heavier loads than white teachers. For the region the Negro load was 40.0 compared to 31.4 for whites. In 1937–38 the teaching load for the Nation was 28.4 pupils per teacher; in the Southeast it was 32.9.

Education and Certification of Teachers

Table X presents the relative status of the seven Southeastern States in respect to the extent of training of teachers. The percentages of teachers having less than 2 years of college training or 4 years or more are the critical figures to note. If both white and Negro teachers are considered, Mississippi is the State with the highest percent (38.1) of teachers with less than 2 years of college training and North Carolina the State with the smallest percent (2.1). The percent of all teachers in the entire region with less than 2 years of college was 17.0. With the exception of North Carolina and possibly Tennessee, the percent of Negro teachers with less than 2 years of college training is noticeably large, reaching 84.7 percent in Mississippi.

In North Carolina 75.8 percent of all teachers have had 4 or more years of college training while in Georgia only 40.1 percent have had 4 or more years. North Carolina is the only State in which more than 50 percent of the Negro teachers have had 4 or more years of college training. In Mississippi only 9.1 percent of the Negro teachers have had 4 or more years of college training. Tennessee has the smallest percent (42.1) of white teachers who have completed 4 or more years of college training. In North Carolina the percent of white teachers with 4 or more years of college training is as high as 83.5 percent.

There is a solid South in the field of teacher education and certification for secondary schools. In 1935 the Southern University Conference appointed a committee to make a study of requirements for teacher training and certification in the Southern States with a view to obtaining uniformity and reciprocity among teachers of the secondary schools. In 1938 the Southern Association of Colleges and Secondary Schools joined the Southern University Conference in its effort A grant for the program was secured from the General Education Board. A joint committee from the Southern Association and the Southern Conference formulated a program of teacher training and certification during a 4-year period. It was not a mere blue-print produced

TABLE X.—*Percentage distribution of teachers according to years of college training: 1939–40*

Area	White					Negro					Total				
	5 years or more	4 years	3 years	2 years	Less than 2 years	5 years or more	4 years	3 years	2 years	Less than 2 years	5 years or more	4 years	3 years	2 years	Less than 2 years
Region	3.9	54.9	9.0	23.2	8.9	0.4	27.1	11.4	22.4	38.6	3.0	47.0	9.7	23.0	17.0
Alabama	7.0	44.9	11.5	30.6	6.0	.5	18.1	7.2	38.6	35.6	5.2	37.2	10.3	32.9	14.4
Florida		[1] 52.7		30.0	17.3		[1] 25.7		48.9	25.4		[1] 46.3		34.5	19.2
Georgia	4.5	43.2	13.5	28.5	10.3	.7	21.4	5.7	23.5	48.7	3.4	36.7	11.2	27.0	21.7
Mississippi	3.7	58.5		26.8	11.0		[1] 9.1		6.2	84.7	2.4	[2] 40.3		19.2	38.1
North Carolina		[1] 83.5	13.6	2.0	.9		55.9	33.7	5.2	5.2		[3] 75.8	19.2	2.9	2.1
South Carolina	17.5	57.0	6.4	12.2	6.9	1.3	21.0	12.6	24.7	40.4	11.5	43.7	8.7	16.8	19.3
Tennessee		[1] 42.1	10.0	34.5	13.4		[1] 37.8	11.9	30.4	19.9		[1] 41.5	10.3	33.9	14.3

[1] Includes percent 5 years or more. [2] Includes Negroes with 5 years or more. [3] Includes whites with 5 years or more.

in an academic setting. Superintendents and representatives of State departments of education, the directors of teacher training and certification, the presidents and professors of colleges and universities, and the principals and teachers of the public secondary schools collaborated. By June 30, 1941, 13 Southern States (7 Southeastern included) were issuing secondary certificates to persons who had completed, substantially, the minimum curriculum agreed upon in the program of unification. In three of the Southeastern States, Alabama, Florida, and Tennessee, reciprocal relations under the unification program have been established by formal action of State authorities. In these three States and Georgia and North Carolina reciprocal relations have also been established by curriculum adjustments by State boards.[4]

Salary and Tenure of Teachers

The average salary of teachers (including principals) in the Southeast in 1940 was $786; in 1930 [5] it was $791 (table XI). It is significant that, in four States, average salary of teachers declined more than 5 percent during the 10-year period. In every State, except Florida and North Carolina [6] the salary of Negro teachers was less than one-half of that of white teachers. The average salary of white teachers ranged from $821 in Mississippi to $1,147 in Florida. In the case of Negro teachers the range was from $235 in Mississippi to $645 in North Carolina. In 1938 the average salary of teachers in the Nation as a whole was $1,374 while that of the region was $752. The decline in the former from 1930 was 3.2 percent and in the latter 4.9. [7] These figures show how far behind the Nation is the Southeast in the payment of its teachers. Undoubtedly the quality of teaching in the region is lowered by this salary differential, which arises from the low regional income.

According to the Southern States Work-Conference's report, *Continuity of Service for Teachers in Southern States*, most of the Southeastern States still have no general tenure or continuing contract laws of either State-wide or local application. The situation in most of the States at the present time may be summarized by the statement that conditions of service for teachers depend more upon policies of employing boards and upon community traditions than upon law. Policies of employing boards vary greatly. In general, in the more populous centers policies are such that competent teachers do have reasonable freedom from concern as to whether they are to retain their positions from year to year. However, there are numerous exceptions to such policies. There have been instances where boards have set up tenure policies which in the long run would tend to undermine the school system.

Some communities have developed a tradition that teachers should move on within a few years regardless of their competency. Such a tradition is frequently stimulated and perpetuated by the fact that teachers in the smaller areas who are of outstanding competence usually tend to move on within a few years because they secure better positions. Other teachers tend to be moved because their work is not satisfactory, so there is little continuity of service either for competent or incompetent teachers. In some instances political favoritism is operative.

In general there seems to be a widespread demand for better protection for competent teachers. The communities in which teachers are employed and discharged because of personal or political reasons seem to be decreasing in number. Parents are beginning to recognize and appreciate the value of good teaching and are demanding that competent teachers be protected either through policies adopted by the Board or, if necessary, through legislation.

TABLE XI.—*Average salaries of teachers and principals and percent of change: 1930 and 1940*

Area	1930			1940			Percent of change 1930–40		
	Total [1]	White	Negro	Total	White	Negro	Total	White	Negro
Region	791	----	----	786	934	438	−0.6	------	------
Alabama	792	----	----	740	874	408	−6.6	------	------
Florida	876	----	----	1,011	1,147	583	15.4	------	------
Georgia	681	----	----	752	901	403	9.9	------	------
Mississippi	620	----	----	580	821	235	−6.5	------	------
North Carolina	873	----	----	836	910	645	−4.2	------	------
South Carolina	788	----	----	743	953	391	−5.7	------	------
Tennessee	902	----	----	847	------	------	−6.1	------	------

	1930			1938			Percent of change 1930–38		
United States	1,420	----	----	[1]1,374	------	------	−3.2	------	------
Region	791	----	----	[1] 752	------	------	−4.9	------	------

[1] Includes supervisors (number not large enough to affect comparison seriously).

Curriculum Trends [8]

Certain curriculum trends growing out of social and economic conditions and current educational theory have become fairly well established throughout the Southeast. Some of these follow a pattern typical of the Nation as a whole; others are more or less accentuated, depending upon local conditions and leadership. In discussing the various trends, brief reference is made

[4] *A Unified Program of Teacher Education and Certification in the Southern States*, sponsored by the Southern University Conference in Cooperation with the Southern Association of Colleges and Secondary Schools, the University Press of Sewanee, Tenn., 1941. (Material above summarized from various sections of the report.)

[5] The 1930 average salary includes supervisors as well as teachers and principals.

[6] No data for Tennessee.

[7] Salaries of supervisors included at both dates.

[8] This discussion of trends in curriculum was taken with adaptations from *Administration of State Curriculum Programs*, Bulletin No. 5, Southern States Work-Conference on School Administrative Problems, Tallahassee, Fla., 1941.

to the desirability of the trend in the light of the needs and opportunities for improving living in the Southeast.

Materials Emphasizing the Social Purpose of the School.—Virtually every Southeastern State has produced within the past 10 or 15 years a complete series of curriculum bulletins covering the basic purposes of education, and the social and economic problems confronting the region or locality, and has prepared suggestive aids to teachers designed to assist them to relate the work of the pupils to their democratic social objectives. It is doubtful whether in some cases these bulletins have been utilized sufficiently to warrant their cost, although in cases where adequate local, regional, or State supervisory leadership was available to secure proper use of the materials, they have probably resulted in improved educational programs.

Instructional Programs Based upon Local Resources and Needs.—Closely related to the preceding trend is the problem of adapting the school program to meet local social and economic needs. While it is true that the Southeastern States face many difficult problems and unsatisfactory conditions, these obstacles can be used as the motivating force for an instructional program, rooted deeply in the lives of the youth and adults of each community. Each of the States in the region has under way one or more outstanding local programs based upon local need and initiative. While there is general agreement as to the value of school programs which grow out of local problems, there is danger that local programs may become provincial and narrow. The fact that pupils do not always remain within a narrowly defined geographic or social groove indicates that, while local needs and interests call for attention, study should be expanded to discover likenesses, differences, and relationships between local problems and regional and national problems. Indeed, without the development of "common concern" among individuals, groups, and regions, democracy of itself cannot endure.

Interpreting the Needs and Purposes of the School to the Public.—Most of the States have in the past few years devoted considerable energy in this direction and yet there is evidence that much more work must be done along this line if the public is to become really informed as to the needs and purposes of the school. Several Southeastern States have issued lay bulletins, some of which are well illustrated and written in attractive style, designed to further parent-lay-teacher cooperation. The rapid change in the purposes, needs, and procedures of our public schools is understood only with difficulty by adults whose own educational experiences were in some cases quite unlike modern opportunities and methods. There is considerable evidence which points to the fact that the schools have not done a creditable job in interpreting the purposes of education to the boys and girls now in the public schools who will become the voters, taxpayers, and legislators of tomorrow, or in developing in them a desire and concern for extending educational opportunity.

Special Shifts in Emphasis Arising from Present World-Wide or Local Conditions.—As is the general rule during any period of emergency, the public is now looking to its public schools to lay stress upon those things which it considers essential for the preservation of democracy or for the improved life of the citizenry of the Nation.

Certain States report increased emphasis upon the teaching of democracy, upon an increased attention to our cultural relationships with the other Americas, upon developing closer ties with the English-speaking peoples, upon conservation, and upon technological defense study.

Legislative enactments along these lines which have not in some cases given enough consideration to the plans which the regularly constituted educational authorities had already developed to care for the particular needs, are unfortunate. It is likewise unfortunate that in more cases educational leadership has not arrived in time to anticipate such needs and to reorganize instruction so as to care for immediate and pressing problems in a manner which is educationally sound and at the same time is satisfactory to the general public.

There is real need for State and local leaders to think carefully about all proposals of this kind and to insist upon an integration of all such activity within the framework of the general school program. This principle should also apply to coordinating the work of the Federal agencies designed to care for the educational needs of out-of-school youth. In fact, educational leaders in the Southeast feel that much more significant advance could have been made in solving the personal problems of unemployed youth and those of society if funds appropriated had been spent through regular channels and the public schools given the finances necessary to provide suitable educational opportunities.

Increased Emphasis upon General and Special Education.—Nowhere in the entire Nation is there a more pronounced trend than in the Southeast toward moving in what might be viewed as "two opposing educational directions." Reference here is made to the trend toward so-called "core programs" of general education and at the same time toward higher specialized technical and vocational education. There is, however, no conflict between education for civic literacy and education for work; between "background" and the practical application of basic knowledge to work experience. Individual projects or group and community projects

should be introduced into the curriculum and be used as devices for the exploration of the basic principles of science, or language, or of mathematics, involved in doing the piece of work at hand with proper skill and understanding. So-called special subjects may properly become the very center of school activity for certain pupils and may lend the motivation needed to send these pupils searching for basic ideas and principles. Given as "techniques" alone, they develop skill without the intelligent social background needed for a proper use of skill. Highly specialized or advanced training in skills might well be deferred to the later years of senior high school, or placed in grades 13–14 for pupils not intending to go into the fields of endeavor requiring an even more extended period of general education. Extended cooperative planning must be carried on by teachers of so-called general and special fields in order that the ability and outlook of the pupil be furthered to a maximum degree.

Length of Term and Continuity in the School Program.—Several States have issued materials which comprehend a school program to meet the needs of individuals from birth through adulthood. They point to the need for preschool, nursery school, kindergarten experience; to the need for a well-rounded elementary school program covering science, social studies, language, art, music, health, mathematics, and other fields in which the pupil may have rich experience in grades 1–6; to a secondary school program through twelve years with possibly the addition of grades 13–14. These added grades would continue the emphasis on general education for those pupils who plan later to seek vocational training in the so-called professions and would substitute rather specialized work in technical, industrial, agricultural or business education for those who will enter vocational pursuits directly upon leaving the secondary school.

Education must be planned in terms of a continuous flow, beginning with preschool education and extending through adult education, for only in this manner can the experience at any level be designed with maximum effectiveness. Persons working at different levels of instruction should inform themselves about the work at the other levels; no one level of instruction or area of instruction should predetermine the learning to be acquired at the other levels. Moreover, the educational growth of pupils should not be hurried.

Increased Attention Given Elementary Schools.—Nowhere in the educational picture has greater change come about within the past decade than in the elementary school field. There is a decided trend toward raising qualifications for elementary school teachers and principals, providing equal pay for elementary and secondary teachers when they have equal training and experience, and toward extending the school term of the elementary school so as to make it of equal length with the secondary school. There is also a decided trend in the school analysis or accrediting forms of the various Southeastern States which aim directly at raising elementary schools to the same level of recognition as is accorded the secondary schools. In short, these standards seek to evaluate the total educational opportunity afforded by a school center or larger unit of school administration rather than educational opportunity afforded at some particular level. Such a procedure seems sound in view of the fact that individuals usually become less tractable as they mature and that most attitudes and habits are established relatively early in life. Consequently, school programs in Southern States will increasingly take their direction from the needs of the child and a sound democratic order rather than from the time-honored demands of the college or secondary school.

Readjustment of the School Program to Meet the Needs of Pupils at All Levels of Physical, Mental, and Social Growth.—The trend toward raising the entrance age of beginning pupils has a distinct bearing upon the kind of educational experience which can be provided with profit to the individuals concerned. The physical age of a child may be far greater than his mental ability or social exposure. Since all of these factors are involved in learning, variations from procedures which have been termed "standard" for certain grades may be expected to increase in the future. Furthermore, it is reasonable to expect that changes in performance required of individuals during the early part of their educational experience may necessitate similar changes at later levels of instruction.

Relating the Work of the School to the Activities of Life.—Those charged with the responsibility for leadership in improving instruction in the Southeast have been almost unanimous in their approval of centering the work of the school around areas of living or of life activities in which both children and adults normally engage. These activities include earning a living, enjoying leisure time, transporting goods, communicating ideas, distributing and conserving goods and services, engaging in aesthetic and religious experiences, and other variations of classifications derived from any careful analysis of living as it goes on in the local or wider community. Subject fields, such as science, mathematics, social studies, and language, have sometimes been set aside in favor of newer combinations of material from those fields which seemed to have a more direct bearing upon the life experiences, problems or activities enumerated above.

Whether schools have kept their subject-field titles or have resorted to a new terminology for the newly

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TABLE XII.—*Value of school plant per child enrolled, white, Negro and total: 1939–40*

Area	Total value of school plant	Value of school plant per child enrolled	Value of school plant for whites	Value of school plant per white child enrolled	Value of school plant for Negroes	Value of school plant per Negro child	Estimated value of Negro school plant if building facilities equalized	Estimated cost of additional buildings needed for Negroes
Region	$444,578,469	$98.89	$393,763,180	$132.13	$50,815,289	$33.52	$222,015,468	$171,200,179
Alabama	57,574,157	83.83	51,847,983	115.96	5,726,174	23.89	27,790,742	22,064,568
Florida	84,287,910	212.32	78,547,738	269.43	5,740,172	54.43	28,414,088	22,673,916
Georgia	74,937,431	95.97	65,724,159	129.47	9,213,272	33.70	35,401,530	26,188,258
Mississippi	[1] 58,439,410	96.00	50,000,000	161.87	8,439,410	28.15	48,536,234	40,096,824
North Carolina	[2] 116,439,016	130.46	101,823,593	164.12	14,615,423	53.71	44,661,647	30,046,224
South Carolina	52,900,545	109.81	45,819,707	172.35	7,080,838	32.80	37,211,227	30,130,389
Tennessee								
1937–38								
United States	7,115,377,402	274						
Region	467,414,061	107						

[1] Estimated.

[2] 1938–39 data.

arranged courses, such as "Core," "General Education," or "Basic Education," there is a well defined trend in the direction of education for basic social adequacy. This includes an appreciation of democratic ways of living and a willingness and ability to contribute one's share to the advancement of society.

Value of School Plant

In 1938 the value of school property per pupil enrolled in the Southeast was $107 as compared to $274 for the Nation as a whole. In 1940 the regional figure was $99. As shown in Table XII the differential between whites and Negroes in value of school property per pupil enrolled is large for the region as well as for each State in the region. The last column of the table gives the estimated cost of additional building needed to equalize building facilities for the two races. For the region an expenditure of $171,200,179 would be required.

Pupil Transportation

The consolidation of schools and the resulting growth of pupil transportation is an important feature of education in the Southeast. For the region as a whole the increase between 1930 and 1940 in number of pupils transported was 165.5 percent (table XIII). In 1940, 26.0 percent of the pupils enrolled in the schools of the region were being transported. In North Carolina it was as high as 36.6 percent.

The Financing of Public Education

In the year 1938 the current expenditure per pupil in average daily attendance in the Southeast region was $38.77, while for the Nation the figure was $83.87, more than twice as great as that for the region (table XIV). While current expenditures per pupil in average daily attendance for the region (as well as the Nation) showed a slight decline between 1930 and 1938, for the longer period, 1930 to 1940, there was a very slight

TABLE XIII.—*Number of children transported—white and Negro combined—with percent of increase: 1920, 1930, 1940*

Area	1920	1930	1940	Percent increase, 1940 over 1930
Region	33,363	440,585	1,169,858	165.5
Alabama	5,704	66,499	217,897	227.7
Florida	7,966	42,326	97,800	131.1
Georgia	5,783	77,762	174,684	124.6
Mississippi			145,000	
North Carolina		181,494	326,321	79.8
South Carolina	8,040	40,100	80,615	101.0
Tennessee	5,870	32,404	127,541	293.6

increase for the region. In both 1930 and 1940 Florida had the largest per-pupil expenditure. Georgia had the lowest expenditure in 1930 and Mississippi the lowest in 1940. While the per-pupil expenditure for the region declined slightly for the whites between 1930 and 1940, it increased somewhat for Negroes. Despite increased expenditure per Negro pupil, the 1940 expenditure per white pupil in average daily attendance was two and three-fourths times that per Negro pupil. In Mississippi current expenditures per white pupil in average daily attendance were slightly more than seven times as great as per Negro pupil.

TABLE XIV.—*Current expenditures for schools per pupil in average daily attendance: 1930 and 1940*

Area	White		Negro		All schools	
	1930	1940	1930	1940	1930	1940
Region	$42.82	$41.97	$12.40	$15.17	$39.46	$39.60
Alabama	47.28	46.82	13.32	14.21	36.84	35.53
Florida	61.29	68.39	18.58	26.42	49.90	57.22
Georgia	42.12	53.23	9.95	14.83	31.35	39.89
Mississippi	57.95	51.68	8.86	7.34	34.82	30.41
North Carolina	50.26	43.55	22.34	25.63	42.53	38.32
South Carolina	68.76	55.85	11.27	15.18	43.02	38.71
Tennessee					42.77	43.55
	1930	1938	1930	1938	1930	1938
United States					86.69	83.87
Region					39.59	38.77

The proportion of total revenue for the public schools of the Southeast derived from State appropriations rose from 29.0 percent in the year 1930 to 54.8 percent in 1940. (See table XV.) The 1930 proportion, however, declined slightly from the 1920 proportion of 31.1 percent. In 1940, 85.5 percent of North Carolina's total public school revenue came from State appropriations. At the other extreme was Tennessee with 33.0 percent of its revenue receipts for public schools derived from State funds. Five of the seven Southeastern States derive over 50 percent of their total school revenue from State appropriations. It should be noted in connection with table XV that while average daily attendance in the region increased by 13.5 percent between 1930 and 1940, revenue increased by only 1.2 percent.

TABLE XV.—*Revenue receipts for schools: 1920, 1930, and 1940*

	Total State appropriation	Total revenue receipts—all sources [1]	Percent of total revenue receipts derived from State funds			Percent increase in total revenue, 1940 over 1930
	1940	1940	1920	1930	1940	
Region	$86,729,474	$155,190,736	31.1	29.0	54.8	1.2
Alabama	11,849,314	21,705,941	61.2	39.2	54.6	11.0
Florida	12,201,067	19,860,096	8.4	29.6	61.4	25.3
Georgia	14,048,432	25,678,642	40.4	32.8	54.7	36.9
Mississippi	6,019,405	15,372,001	.....	35.2	39.2	−11.3
North Carolina	25,066,712	29,339,940	29.8	23.8	85.5	6.7
South Carolina	[2] 9,083,085	17,628,527	11.1	21.6	55.6	.6
Tennessee	8,461,459	25,605,589	18.9	23.4	33.0	19.9

[1] Excludes emergency Federal funds.
[2] Includes 3 mill tax.

Plans for State Financing of the Public Schools

Practically every known plan of State financing is found somewhere in the South. Moreover, these plans are rapidly changing, so that a description of support for a given State generally is accurate only at the time it is written and must be revised after every meeting of the legislature in that State. Most of the States employ several types of State support but there is a trend among the States to reduce the number of special funds or to integrate their administration to the end that State support may be used primarily for the purpose of equalizing educational opportunity and guaranteeing a minimum foundation program.

Small-Fund Plan of State Support.—By this plan, the State defines the cost of a given minimum foundation program of education to be made available to all children; the tax burden for the support of the defined program is equalized by requiring local school administrative units to contribute a uniform local tax effort to the support of the program; the State then undertakes to finance the difference between the cost of the defined program and the amount available from the required uniform local tax effort. The definition of the minimum program may be very inadequate in some States and more nearly adequate in others; the measure of local taxpaying ability may be relatively crude in some States and fairly equitable in other States; but the elements of a defined foundation program, State and local financing of the defined program, and equalization of tax effort for the support of the program, are common to all small-fund plans of State support.

Alabama, Georgia, Mississippi, and Tennessee use the small-fund plan for apportioning a part of their State funds to the public schools:

State:	*Percent of total State funds apportioned on small-fund basis*
Alabama	68.4
Georgia	20.2
Mississippi	47.3
Tennessee	27.7

The amount of money which each of the States apportions on a small-fund basis is determined after credit is given the local school units for funds distributed on other bases. It has been found that a State can effectively equalize educational opportunity and provide a defined minimum foundation program on a smaller total State appropriation, if funds are apportioned on the small-fund basis, than on any other basis. As a general rule, the smaller the total State appropriation in proportion to the total cost of the operation of its schools, the greater is the necessity of distributing State funds on the small-fund equalization basis, if an acceptable minimum foundation program is made available to all children. However, the provision of a satisfactory foundation program for all children is not necessarily prevented if the per capita basis for distribution of State funds is used. It is possible to have a satisfactory foundation program if the per capita fund is large enough.

The items included in calculating the cost of the foundation program, the support of which is to be equalized, vary greatly among the States. Alabama includes teachers' salaries with teacher units allocated on the basis of average daily attendance, their salaries figured in accordance with a State salary allotment schedule which takes into account training and experience, transportation calculated on a basis of number transported and the density of the transported population, current expense other than teachers' salaries and transportation allotted upon a teacher-unit basis, and capital outlay and debt service figured upon a teacher-unit basis; Georgia includes teachers' salaries and an allotment for current expenses other than teachers' salaries and transportation; Mississippi, teachers' salaries and transportation; Tennessee, teachers' salaries and other current expenses for elementary

schools only. All four of the States apportioning some State funds on the small-fund basis, use State salary schedules providing varying amounts for different levels of training and experience as a factor in apportioning State funds. All of the States provide varying pupil-teacher ratios in different size schools, and all except Tennessee provide different pupil-teacher ratios in elementary and high schools. The need for transportation is generally calculated for children living beyond a stated minimum distance from school. Alabama makes variations in unit-cost allowances for transportation as affected by density of the transported population. Georgia and Tennessee provide special funds for school transportation totaling $1,000,000 and $315,000 annually, respectively. Allotments for current expenses other than transportation and teachers' salaries are usually calculated on a teacher-unit basis or some measure closely related to teacher units. Only one State, Alabama, includes a direct measure of capital outlay needs in the calculated cost of the foundation program and the need is calculated on the basis of a flat amount per teacher unit.

The most commonly used measure of local ability to pay is the yield of a stated levy based upon the assessed valuation of property. Local ability to pay is defined as the direct local contribution required to support the foundation program. It does not include State funds received on a per capita basis or some other basis, which funds are charged as available to the local school unit before calculating the amount needed from equalizing funds. Assessed valuation as a measure of taxpaying ability is subject to criticism because of inadequate assessing machinery in most States.

Within some States the ratio between the assessed valuation and the true valuation varies from 30 to 90 percent among local administrative units. The measure of local taxpaying ability of a local school unit in Alabama is expressed in percent of the State total by averaging its percent of the total assessed valuation of the State and its percent of the total economic power of the State as measured by six economic factors. The total local effort required is approximately 5 mills. The measure of the tax-paying ability of a local school unit in Georgia is 5 mills plus balance on hand; Mississippi, 10 mills, and Tennessee, 4½ mills plus the average yield of the poll tax.

Each State has set up a number of requirements for local units as conditions for participation in equalization funds. While no two States have set up identical requirements, there seems to be a great deal of similarity. Thus all four States distributing part of their State funds on the small-fund basis set up the following requirements: uniform financial and education accounting records, uniform reports, a minimum term, a minimum local tax effort, proper budgetary procedure, and provisions for the protection of teachers' salaries.

Large-Fund Plan of State Support.—By this plan, the State undertakes to finance the entire cost of the defined foundation program in all local units. The defined program may be very narrow in its concept or it may be comprehensive. A State fund distributed on the large-fund basis is distinguished from a State fund distributed on a per capita basis in that the former plan has as its objective the purchase of a certain minimum educational program, whereas the latter type has no specifically defined objective. If the educational need of local school units is calculated on a scientific basis, the State can support a reasonable foundation program on a smaller total appropriation if State funds are distributed on the large-fund basis than on the per capita basis. However, both the large-fund basis and the per capita basis require a larger total State appropriation than the small-fund basis of apportioning State funds.

The following tabulation shows the Southeastern States which apportion part of their funds on the large-fund basis and the proportion distributed:

State:	*Percent of total State funds distributed on large-fund basis*
Florida	99. 1
Georgia	71. 3
North Carolina	99. 0
South Carolina	81. 9

The items included in the calculated cost of the minimum program supported by the large-fund method vary greatly among the States. Florida includes a flat teacher-unit allotment for teachers' salaries and an allotment for transportation; Georgia, teachers' salaries and other current expenses; North Carolina, teachers' salaries, transportation, and other current expenses; and South Carolina, teachers' salaries and supervision. All of the four States apportioning a part of their State funds on the large-fund basis provide for varying pupil-teacher ratios for different sizes of schools either by a density correction or directly. All except Florida use a State salary schedule providing different salaries for teachers with different amounts of training and experience in their plans of apportionment. Florida uses a measure related to density of transported pupils in calculating varying unit cost allowances for transportation. South Carolina provides a special fund for school transportation of $300,000 annually. Current expense needs in those States providing such allotments are calculated on some basis related to teacher-unit needs.

State requirements for participation in State funds distributed on the large-fund basis are quite similar to those on the small-fund basis. Each of the States on

the large-fund basis requires a uniform record system for financial and educational accounting and reports; all require a minimum term; Florida and Georgia require a minimum local uniform tax effort; all except South Carolina require standardized budgetary procedures; and all set up requirements for the protection of teachers' salaries. Georgia uses a combination of the small-fund and large-fund plans, and the equalization fund is used to extend the school term beyond the minimum term provided by the large-fund plan.

State Funds Distributed on Per Capita Basis.—State funds distributed directly on such bases as school census, school enrollment, or average daily attendance are considered per capita funds. One of the earliest plans of State apportionment, it still prevails in Alabama, Mississippi, South Carolina, and Tennessee. Experience has shown that most Southern States apportioning all or nearly all of their funds on a per capita basis, without reference to educational need or the tax-paying ability of local school administrative units, have failed to equalize educational opportunities. No State in the South is wealthy enough to provide sufficient State funds distributed on a per capita basis to make an adequate foundation program of education available to all children.

The per capita method of distribution of school funds has a traditional hold on the public. It is imbedded in the constitution in some States and is difficult to change. Happily, most of the Southeastern States have been able to eliminate some of the injustices of the per capita method of distribution by providing that additional State appropriations be apportioned on the basis of educational need and that local school units be charged with the funds received on the per capita basis before participating in funds distributed on the basis of need. The tendency among the Southeastern States during the past decade has been to decrease the proportion of funds distributed on a per capita basis and to increase the proportion of funds distributed on the basis of educational need.

The Southeastern States distributing a part of their school fund on a per capita basis are:

State:	*Percent of State funds distributed apportioned on a per capita basis*
Alabama	29. 7
Mississippi	49. 8
South Carolina	12. 4
Tennessee	62. 2

Three of the seven States using the small-fund plan of State apportionment also distribute a part of their State funds on a per capita basis. South Carolina is the only State distributing a part of its funds on the large-fund basis which also distributes a per capita fund.

The requirements for participation in per capita funds are relatively simple in most States, usually being limited to required reports and a school census.

Special Funds Distributed to Boards of Education.—Only special appropriations distributed by State boards of education to local boards of education are considered here; excluded are special funds appropriated to State boards of education to be expended directly by such boards for educational purposes, such as appropriations for State-owned text-books, and aid for crippled children.

All of the Southeastern States distribute a portion of their State funds in the form of special grants:

State:	*Percent of total State funds in the form of special grants*
Alabama	1. 9
Florida	0. 9
Georgia	6. 5
Mississippi	2. 9
North Carolina	1. 0
South Carolina	5. 7
Tennessee	10. 1

With the exception of Tennessee, the proportion of total State funds apportioned in the form of special grants is not sufficient to impair seriously the equalization of educational opportunity. The system of special grants grew up in most States as an attempt to remedy the inequities of the per capita method of distribution. Special grants are usually apportioned on a matching or reward-for-effort basis. Under this system, the wealthier units are frequently able to benefit more from special grants than the poorer units simply because local funds are sufficient to match the State grants. Other types of special grants are administered largely at the discretion of the State superintendent of education. This system has the effect of penalizing the poorer districts and it is a type of power which should not be delegated to any one State official.

Fortunately, most of the Southeastern States are rapidly abandoning special grants as a method of State support and substituting therefor State appropriations apportioned on the basis of need as determined by objective formulae.

Summary of Plans of State Apportionment.—Table XVI shows the total State funds apportioned to boards of education and the percent apportioned by each plan. It is recognized that the classification of certain

TABLE XVI.—*Summary of plans of State apportionment, 1940*

Area	Total State funds	Percent by small-fund plan	Percent by large-fund plan	Percent by per capita plan	Percent by special grant plan
Alabama	$11,849,314	68.4	.....	29.7	1.9
Florida	12,201,067	.....	99.1	.....	.9
Georgia	14,048,432	20.2	73.3	.....	6.5
Mississippi	6,019,405	47.3	.....	49.8	2.9
North Carolina	25,066,712	.....	99.0	.....	1.0
South Carolina	9,083,085	.....	81.9	12.4	5.7
Tennessee	8,461,459	27.7	.....	62.2	10.1

funds for some States involved judgment as to the type of fund but it is believed that the table presents a fairly accurate picture of the situation in 1940.

Evaluation of State Plans for the Financing of the Public Schools.—The Committee on State and Local Financing of Public Schools of the Southern States Work-Conference on School Administrative Problems, in preparing the evaluation which follows, did not attempt to arrive at a composite rating of each State in the order of the excellence of its plans of State support. Such a procedure was considered impossible. The committee attempted rather to diagnose the strong and weak points in each State's system of financing its schools. Table XVII presents the rankings of each State on the basis of comprehensive criteria formulated and applied by the committee. The final ranking was made in accordance with the best information available to the committee, and it is possible that some of the rankings should be changed on some items.

In interpreting values used, the number "4," which means "entirely lacking," does not necessarily mean low ranking for a State on that item. For instance, the State of North Carolina is marked "4" on the item rating measures of local ability to pay. Since that State employs the large-fund plan of apportionment, a measure of local ability is unnecessary. On most items, however, the ranking of "4" may be interpreted as a low ranking.

The items in the table are unweighted but some are much more significant than others. For instance, item No. 1, which measures the adequacy of the financial support of the foundation program provided for all children, is more significant than any other item. A State ranking "3" or "poor" on this item has an unsatisfactory plan for State support even if it ranks high on every other item.

Alabama ranks "3" on item No. 1 and "1" on 23 of the 33 items. Florida ranks "2" on item No. 1 and "1" on only 14 of the 33 items. Therefore, Alabama ranks high on technique of apportioning State funds and low on adequacy of financial support, whereas Florida ranks "fair" on adequacy of financial and low in technique of apportioning funds. Florida could improve its plan of State support by improving techniques of apportionment, while Alabama could improve its plan of State support by increasing the funds available for the support of its public schools. But no amount of improvement in technique can overcome inadequacy of total funds. Actually no Southeastern State can be ranked "1" on item 1 in comparison with the national average.

Local Plans for Financing Education

Table XVIII ranks the 7 Southeastern States on a criteria scale for evaluating local financing plans.

TABLE XVII.—*Status of 7 Southeastern States on scale evaluating State financing plans* [1]

Items	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Tennessee [2]
1. The program of State support should guarantee an adequate foundation program of education to every child	3	2	3	3	2	3	2
2. The program of State support should require a minimum uniform local tax effort	1	3	1	1	4	4	
3. The uniform required local tax effort should not be so great as to prevent the local school unit from exceeding the State-supported minimum program	3	2	2	1	2	1	1
4. State revenue sources should be stable enough to permit accurate budgeting for a least a year in advance	2	1	3	2.	1	1	1
5. State revenue sources should be sufficient to pay the appropriations necessary to meet the defined program of educational need	1	2	3	2	1	1	1
6. State appropriations should be sufficient and so administered as to enable all local school units to participate in the State-supported program	1	1	2	2	1	1	1
7. The program of State support should be organized and administered so as to provide for the integration or unification of State funds and prevent the establishment of numerous special funds distributed without reference to each other	1	1	1	2	1	1	3
8. Determination of educational need. Any plan for calculation of educational need should provide for an objective calculation of all phases of educational need in proper relationship in order to provide a reasonably well-balanced educational program:							
(*a*) Calculation of need for instructional salaries:							
(1) Calculation of teacher units should take into consideration necessary variations in pupil-teacher ratios caused by variations in size of school or density of population	1	2	1	2	1	2	1
(2) Calculation of teacher units should take into consideration necessary variations in pupil-teacher ratios as between elementary and high schools	1	1	1	2	1	1	1
(3) Calculation of teachers' salaries should give limited consideration to variations in training and experience of teachers	1	4	1	1	1	2	1
(4) Calculation of teachers' salaries should give limited consideration to variations in living costs	4	4	4	4	4	4	4
(*b*) Calculation of transportation needs:							
(1) The State program should provide for transportation for all children who live beyond a reasonable walking distance from approved school centers	2	1	2	3	1	3	1
(2) The determination of unit transportation costs should be based primarily upon variations in density of transported pupils which may be corrected for any other factors affecting transportation costs, which factors are beyond the control of local school authorities	1	2	2	4	1	2	4
(*c*) Calculation of current expense needs, other than teachers' salaries and transportation, should be based primarily upon allowable teacher units	1	4	2	4	1	4	1
(*d*) Calculation of capital outlay needs should be based primarily upon allowable teacher units	1	4	4	4	4	4	4
9. Calculation of ability to pay:							
(*a*) The measure of ability to pay should be calculated upon an equitable basis such as required uniform levy on the true valuation of property assuming 100 percent tax collections or on the basis of an economic index of ability to pay	2	4	3	2	4	4	2
(*b*) If local school units have unusual additional ability to pay in addition to ability as determined in (*a*) above, such as lucrative severance taxes, this additional ability to pay should be included in the final ability measure used	4	4	4	4	4	4	4

See footnotes at end of table.

TABLE XVII.—*Status of 7 Southeastern States on scale evaluating State financing plans*—Continued

Items	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Tennessee [2]
10. Calculation of State funds needed should be determined by objective formulae as follows:							
(a) Equalization funds distributed on the small-fund method by first deducting ability to pay from the total cost of the foundation program and then deducting from the remainder the sum of regular Federal funds and State funds other than equalization funds available to local school units	1	4	1	2	4	4	1
(b) Foundation program funds distributed on the large-fund method by using an objective formula for determining need	4	2	1	1	1	3	2
(c) Per capita funds should be distributed by using a uniform objective formula based upon a per capita unit	1	4	4	1	4	4	1
(d) Special funds should be distributed by using some objective formula not subject to personal bias	1	1	1	2	1	4	1
11. Certain requirements for participation should be established:							
(a) Any requirements for participation should be equitable, objective, and capable of impartial administration	1	1	1	1	1	2	1
(b) Continuing acceptable requirements should be written into law	1	1	1	2	1	1	1
(c) Desirable requirements which may be established by the State board of education	1	1	1	1	3	3	1
(d) Sufficient requirements should be established in order to insure that all children receive the benefits intended. They should include the following:							
(1) A stated minimum term for all schools	1	1	1	3	1	1	1
(2) A reasonable uniform minimum local tax effort	1	2	1	2	4	4	1
(3) Proper budgetary procedure	1	1	1	1	1	3	1
(4) Satisfactory educational and financial accounting	1	1	2	2	1	2	1
(5) Equitable use of funds for providing educational facilities for:							
(a) White and Negro children	3	3	3	3	2	3	1
(b) Elementary and high schools	2	2	1	2	1	3	2
(c) Urban and rural children	1	2	1	2	1	3	1
(6) Proper provisions for the protection of teachers' salaries	1	1	1	2	1	1	1
(e) Requirements should not operate to restrict local initiative but rather to safeguard a minimum program	1	1	1	1	2	2	1

[1] The entries under each State are expressed in numbers as follows: 1 is "good," 2 is "fair," 3 is "poor," and 4 is "entirely lacking."

[2] For Tennessee items 8 to 11, inclusive, are checked for the State appropriation for elementary schools only because the method of apportioning State high-school funds differs from the method of apportioning State funds for elementary school and the criteria scale in this instance cannot satisfactorily be applied to both methods of distribution in one checking. The method of apportioning high-school funds generally serves to equalize high-school opportunities, but the method of apportioning elementary-school funds is superior to the method of apportioning high-school funds.

The rating was done by the Committee on State and Local Financing of Public Schools of the Southern States Work-Conference on School Administrative Problems. The same procedures were followed as in the State financing criteria scale. Since local school funds are derived almost exclusively from ad valorem taxes, the criteria scales are restricted to evaluation of the administration of that type of revenue. According to Table XVIII, the system of assessing property is poor in five of the Southeastern States and only fair in the other two. Tax delinquency is a problem in at least three of the States. Budget making is complicated in at least two of the States because of inability to pool funds. Part of this condition is no doubt due to ear-marked grants provided by the State. The tabulation under item 10 shows that three of the Southeastern States could improve administrative efficiency by enlarging the size of local school administrative units. The Southeastern States have made real progress in the organization of schools into relatively large local administrative units. Four States have relatively few local school units; these are usually large enough in area to facilitate efficiency of both local and State administrative and supervisory procedures.

State:	*Number of local administrative units*
Alabama	112
Florida	67
Georgia	228
Mississippi	4, 954
North Carolina	169
South Carolina	1, 752
Tennessee	164

TABLE XVIII.—*Status of 7 Southern States on scale for evaluating local financing plans* [1]

Items	Alabama	Florida [2]	Georgia	Mississippi	North Carolina	South Carolina	Tennessee
1. Property should be assessed at a uniform proportion of its true value throughout the State	2	3	3	3	2	3	3
2. The machinery for collecting taxes should reduce tax delinquency to a minimum	1	3	2	2	2	3	3
3. A uniform minimum tax rate should be required of all local school units	1	3	1	2	4	4	4
4. If a State has a constitutional or statutory tax limit for schools, local school units should have the authority to levy taxes in addition to the minimum required rate in order to permit such units to provide educational facilities in addition to the State foundation program	3	2	1	2	2	1	4
5. All local taxes for public schools should be applied to the support of the general educational program except revenues pledged for debt service	1	1	1	1	1	1	3
6. Revenue receipts from State, Federal, and local sources should be pooled into a general fund by local school units and applied by said units to the support of the total educational program, subject to the laws of the State	2	3	1	2	2	2	3
7. Proper budgeting, accounting, auditing, and reporting should be required	1	1	1	2	1	3	3
8. Local school units should keep uniform educational and financial records, insofar as desirable minimum essentials are concerned	1	1	2	1	1	2	2
9. Local school units should have the authority to issue bonds for capital-outlay purposes secured by an unlimited tax levy or an irrepealable levy, subject to adequate statutory and administrative controls over the total indebtedness incurred	1	1	1	1	1	1	3
10. Local school units should be sufficiently large to provide for maximum economy and efficiency in administering and financing the schools	1	2	3	3	2	3	2
11. Local boards of education should be fiscally independent of other local governmental authorities	1	2	1	1	2	1	4

[1] The entries under each State are expressed in numbers as follows: 1 is "good," 2 is "fair," 3 is "poor," and 4 is "entirely lacking."

[2] If Florida were rated now, its rating would be materially changed because of laws enacted by the 1941 legislature.

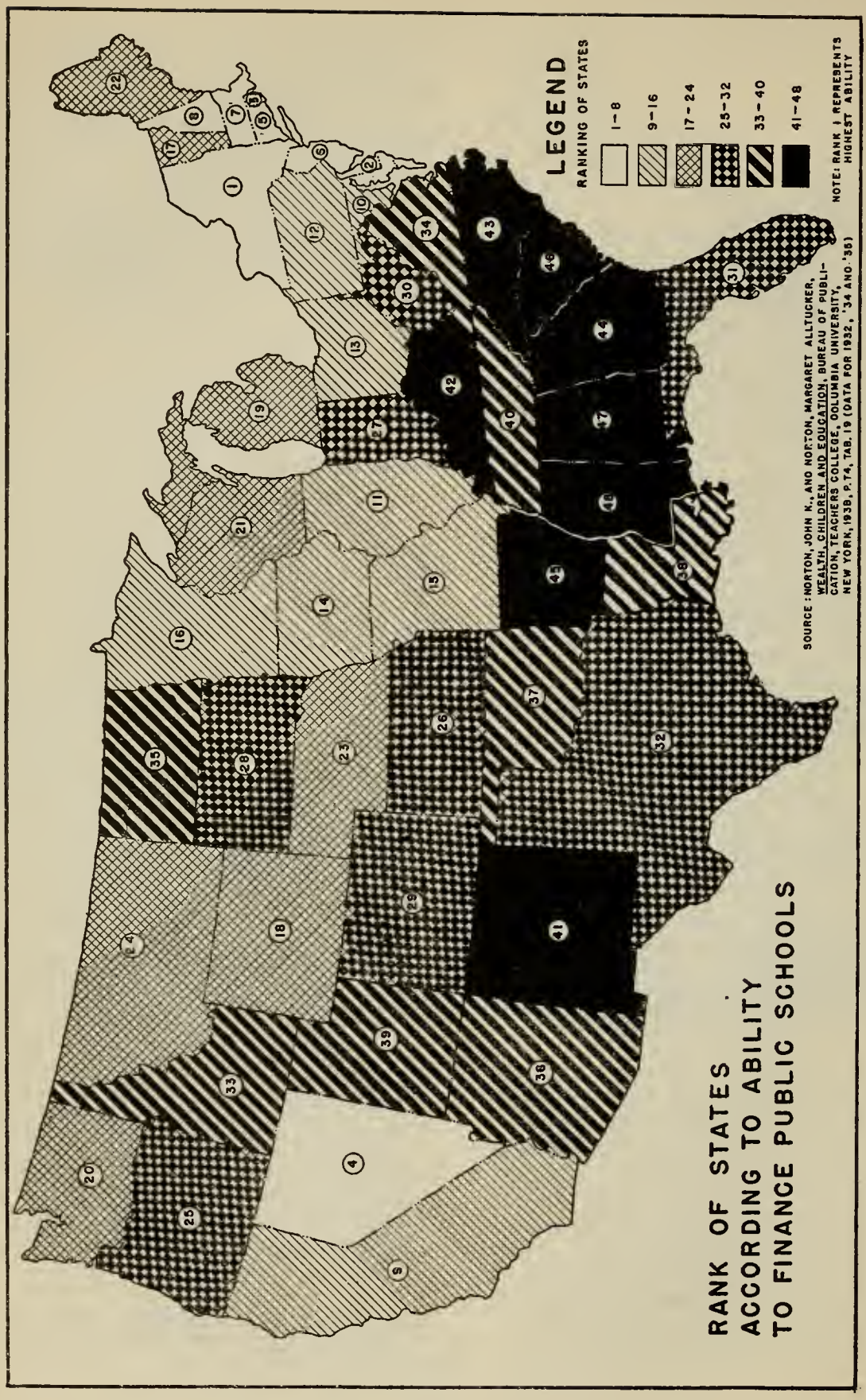
RANK OF STATES
ACCORDING TO ABILITY
TO FINANCE PUBLIC SCHOOLS
LEGEND
RANKING OF STATES
1-8
9-16
17-24
25-32
33-40
41-48
NOTE: RANK 1 REPRESENTS HIGHEST ABILITY
SOURCE: NORTON, JOHN K., AND NORTON, MARGARET ALLTUCKER, WEALTH, CHILDREN AND EDUCATION, BUREAU OF PUBLICATION, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK, 1938, P. 74, TAB. 19 (DATA FOR 1932, '34 AND '35)

Figure 30

TABLE XIX.—*Relative ability and effort of the States to finance education as related to adequacy of financial support*

Area	Percent of school attendance (units of educational needs) 1934 [1]	Percentage of resources as indicated by—				Percent of current expenses for education 1935–6 [2]	Index of relative ability to finance schools [6] United States=1.00	Index of relative effort to finance schools [7] United States=1.00	Index of relative adequacy of school support [8] United States=1.00	Rank in relative—		
		Revenue from model tax system (Chism) 1932 [3]	Weighted economic resources (Norton) 1934 [3]	Yield of standard tax plan (Newcomer) 1935 [4]	Composite average of percentages, Columns 3, 4, and 5					Ability [9]	Effort	Adequacy [11]
1	2	3	4	5	6	7	8	9	10	11	12	13
Alabama	2.126	0.838	0.92	0.678	0.812	0.930	0.38	1.15	0.44	47	11	46
Florida	1.229	.858	.81	1.076	.915	.998	.74	1.09	.81	31	21	30
Georgia	2.402	1.138	1.25	.882	1.090	1.081	.45	.99	.45	44	26	45
Mississippi	1.793	.591	.61	.464	.555	.755	.31	1.36	.42	48	4	47
North Carolina	3.100	1.318	1.88	1.416	1.538	1.426	.50	.93	.46	43	33	43
South Carolina	1.547	.650	.81	.483	.647	.709	.42	1.10	.46	46	20	44
Tennessee	2.126	1.249	1.16	1.164	1.191	1.109	.56	.93	.52	40	31	42
United States [12]	100.000	100.000	100.000	100.000	100.000	100.000	1.00	1.00	1.00			

Source: Norton, John K., and Norton, Margaret Alltucker, *Wealth, Children and Education*, Teachers College, Columbia University, New York, 1938, p. 74, table 19.

[1] Percentages of column 2 are based on data of *ibid.*, table B, column 9, p. 114.
[2] Percentages of column 3 are based on table 35, column 42, page 148 of Leslie L. Chism, *The Economic Ability of the States to Finance Public Schools*, Teachers College, Columbia University, New York, 1936.
[3] Percentages of column 4 are from table A, column 23 in appendix of Norton and Norton, *op. cit.*
[4] Percentages of column 5 are based on data from the Advisory Committee on Education, *Report of the Committee*, Washington, 1938, p. 226, table 2, column 3.
[5] Based on data supplied by U. S. Office of Education. (Total current expenses for education less Federal aid and subsidies from educational foundations.) See tables D and E and p. 125 for method of calculation, Norton and Norton, *op. cit.*
[6] Data in column 8 were obtained by dividing figures in column 6 by those in column 2.
[7] Data in column 9 were obtained by dividing figures in column 7 by those in column 6.
[8] Data in column 10 were obtained by dividing figures in column 7 by those in column 2.
[9] Column 11 was obtained by ranking the 48 States in column 8.
[10] Column 12 was obtained by ranking the 48 States in column 9.
[11] Column 13 was obtained by ranking the 48 States in column 10.
[12] If data on all States were presented for columns 2 to 7, inclusive, the percentages would equal 100 for the United States.

State Ability and Effort to Support Education

Table XIX indicates the relative ability and effort of the Southeastern States to support education. Three of them, South Carolina, Alabama, and Mississippi, rank 46, 47, and 48 in ability to support education, and no State in the region ranks above 31. As column 12 shows, several of these States make an enormous relative effort to educate their children, despite low financial ability. Mississippi, which ranks 48 among all States in ability, is fourth in terms of effort. Two States are in the upper quartile in the Nation, and 4 are above the median. Yet column 13 shows the tragic fact that, despite great effort, these States fall far short in meeting educational needs. No Southeastern State ranks above 30 in the national picture, and six rank 42 to 47. (See Fig. 30.)

Federal Plans for Financing Public Schools

The Federal Government has had no consistent policy with respect to assistance in the financing of the public schools. There have been many precedents for Federal support of public education at all levels—elementary, secondary, and higher—but these precedents have failed to merge into any comprehensive plan of financing. Many Federal support bills which have proposed definite financing plans have been considered by Congress for a number of years.

The only general aid of a nonemergency character provided by the Federal Government for the public schools is comprised largely of the income from sixteenth section land grants and surplus revenue grants. These grants were made so long ago that their income is generally considered by the States as State funds.

The principal nonemergency support by the Federal Government is for vocational education, and it is apportioned on a matching basis.

The public schools have received considerable assistance from Federal emergency funds, both directly and indirectly, during the depression years. Many of these funds, especially those provided by WPA, PWA, and NYA, have had to be matched by varying percentages of local funds and this practice has tended to penalize the poorer districts. However, the primary purpose of Federal emergency funds has been to create employment and it was not to be expected that they be administered so as to achieve maximum educational returns.

Another development of the Federal emergency program has been the cause of considerable concern. There are instances of the WPA, the NYA, and the CCC setting up and administering directly educational programs which parallel to some extent State programs of education. Educational leaders of the public schools in the Southeast are unanimous in their opposition to the Federal Government's setting up an educational system in competition with State systems. They believe that the emergency agencies could have given much greater assistance to educational programs without at the same time seriously impairing the reemployment program, if State and local authorities had been given a larger authority in administering the Federal emergency funds made available to the public schools. Southeastern educational leaders maintain that the

Federal Government, when participating in the support of the public schools, should work through State departments of education.

A more recent development is the defense training program of the Federal Government. This program is administered by the United States Office of Education, the National Youth Administration, and the United States Employment Service. The actual training falls to the United States Office of Education and the NYA. The latter executes its responsibility through its own work projects and work camps, the former through the continuing programs of State Boards of Vocational Education. In the latter instance there appears to be more cooperation with the State educational organization than has been true of a number of Federal activities in the field of education.

There are many other instances of Federal participation in public education, of both emergency and defense character, but it is not possible here to include a comprehensive review of Federal support. Some attention is given to Federal financing of public education, however, because it is destined to become increasingly significant.

Higher Education[10]

The leadership of a region is dependent in no small way upon the products of its colleges and universities. According to the 1941 *Educational Directory*, there were 252 institutions of higher education in the Southeast, or 14.3 per cent of the national total, classified as follows:

Colleges and universities	91
Professional schools	14
Teacher colleges	16
Normal schools	1
Junior colleges	69
Negro institutions	61
Total	252

The *Biennial Survey of Education in the United States* reported receiving personnel data for 1937–38 from 247 institutions of higher learning in the Southeast. Seventy-six of these institutions were publicly controlled and 171 privately controlled.

The reported enrollment in 1937–38 for the region was 120,024, an increase since 1929–30 of 31.8 percent compared to the Nation's 22.7 percent. The following tabulation gives the percent of increase in enrollment for the 8-year period:

State:	Percent of increase
Alabama	16.5
Florida	91.2
Georgia	31.4
Mississippi	18.3
North Carolina	52.0
South Carolina	30.9
Tennessee	15.0

While college and university enrollment has been increasing in the Southeast, it is still low when related to the population. Thus, in 1937–38 there were 67 students per 10,000 population as against 104 per 10,000 for the Nation. Tennessee and North Carolina had the highest rates, each with 82 per 10,000 of the population, and Mississippi the lowest with 59.

There were 2,676 high schools in the Southeast which, in 1938, reported 80,761 graduates for the preceding year; of this number 35.2 percent continued their education, 31.9 percent going to college and 3.3 percent to some institution other than a college. For the Nation 29.2 percent of graduates (18,521 schools) continued their education, with 24.0 percent going to college and 5.2 percent to an institution other than college. Every State in the region had a higher percentage of students going to college than the Nation.

The per pupil expenditure for higher education for 1937–38 was $342.95 for the region, while that for the Nation was $352.82.[11] While this difference is not large, it must be recalled that the ratio of college enrollment to the population is much lower for the region than for the Nation.

The per pupil expenditure by States was as follows:

Area:	Per pupil expenditure
Alabama	$333.34
Florida	320.60
Georgia	322.16
Mississippi	324.66
North Carolina	393.55
South Carolina	305.95
Tennessee	348.67
United States	352.82

Plant investment for colleges and universities in the region, as reported in 1937–38, was $269,863,087.[12] This was a per pupil investment of $2,108.91 as compared to $1,897.81 for the Nation, but a per capita of the population investment of $15.05 as compared to the Nation's per capita figure of $19.78.

[10] Since this study is primarily concerned with elementary and secondary education, only brief treatment has been given higher education. Data are from U. S. Office of Education, *Biennial Survey of Education in the United States*, 1940, ch. IV, "Statistics of Higher Education, 1937–38", and ch. V. "Statistics of Public High Schools, 1937–38"; also *Educational Directory*, 1941, pt. III, "Colleges and Universities".

[11] Expenditure as used here includes the following items: Administration and general control, resident instruction and nonbudgeted research, organized research separately budgeted, extension, libraries, physical plant operation and maintenance, and unitemized expenditures.

[12] Includes value of grounds, dormitories, other buildings and improvements, equipment, and unexpended plant funds.

RECOMMENDATIONS

This section of recommendations deals with those areas of education in which action is required if the basic educational needs of the region are to be met. Recommendations include school financing and related administration, curriculum, teacher training and continuity of service, and Negro education.

School Finance and Related Administration [13]

1. *Recommendations for Improvement of State Financing of Public Schools.*—A. Application of the criteria scale shows that the method of calculating educational need can be improved in all the States. It is particularly important that the State-supported foundation program include all the phases of an essentially sound foundation program. Some States underwrite the costs as far as teachers' salaries are concerned, others include salaries and transportation allowances, but few make provisions for supporting the entire program as far as foundation costs are concerned.

B. An analysis of methods of calculating ability of local school systems to pay shows that most of the States need to improve the equitability and reliability of measures employed in distributing equalization funds.

C. The criteria scale shows that at least two of the Southeastern States do not properly integrate and unify State funds when determining the amount of State funds needed by administrative units. It is essential that the administration of State funds be properly integrated if the State is to make maximum use of its available funds for the purpose of equalizing educational opportunity. Elimination of special grants by consolidation with the minimum program fund is essential to the proper unification of State funds in at least one State.

D. Inequalities can be reduced in several States by increasing the proportion of State-provided funds. This plan gives a broader tax base for school support, tends to equalize the tax burden, and makes possible the spending of school funds in those areas of the State where the pupil burden is heavy and the tax-paying ability is low. It is not recommended, however, that the State assume the entire cost of the public school program.

E. A larger proportion of available State funds distributed on the basis of educational need and a smaller proportion on the per capita basis are greatly needed in at least two Southeastern States.

F. The State has not discharged its full responsibility in providing a minimum program of education for all children by the provision of large appropriations. The State has the further responsibility of establishing and enforcing certain minimum standards which must be a condition for participation in the State appropriation. Care must be taken, however, that the essential element of local initiative and local control of public education be preserved. Only those controls should be set up which put a floor under the educational program. No State control should ever be established which places a ceiling on progress.

G. The studies show that Negro children in general have very limited educational opportunities in the Southeastern States. Significant progress has been made during the past 10 years in improving Negro education. Educational opportunities for the white race in every Southeastern State are below the national average. It is not recommended that educational opportunities for white children be reduced in order to increase the educational opportunities available for Negro children. Rather, it is recommended that as additional revenue is made available, Negro children be given a more equitable share.

H. Discrimination in the provision of educational facilities for elementary and high schools should be eliminated. Such discriminations are undemocratic and are relics of the days in which only the privileged had the advantages of secondary education.

I. In some States, the State plan of apportionment does not safeguard the foundation program in rural areas. The Southeastern States are largely rural and most of the children are reared in those areas. Therefore, some of the Southeastern States should make further changes in their financing in order that discrimination against rural children may be abolished.

J. There should be further improvement in the systems of financial and educational records in most of the States.

K. All of the States should encourage the improvement of the efficiency of local school administration. State controls and State administrative services cannot take the place of local school administration.

2. *Recommendations for the Improvement of Local Financing of the Public Schools.*—A. The upper limits on constitutional or statutory tax limitations in most of the States should be increased. Some tax experts believe that there should be no tax limit for schools and that the people of a local school unit should have the privilege of deciding for themselves the amount of local taxes levied for the purpose of exceeding the State foundation program of education.

B. The local administrative units should be reorganized into larger units in three of the Southeastern

[13] Recommendations relating to school finances and related administration were taken, with a few minor alterations and additions, directly from *State and Local Financing of Schools*, Bulletin No. 1, Southern States Work, Conference on School Administrative Problems, Tallahassee, Fla., 1941.

States. In many instances this one step will go far toward equalizing educational opportunities in a given section. The organization of local school units can be improved even in some States organized on the county-unit basis.

C. In some States the assessments range from 30 percent of the true value of property in some districts to approximately a 90 percent assessment in others. Much can be done to lessen the inequalities of financial support if all counties within a given State have uniform and fair assessment bases. A State tax equalization authority, adequately staffed with properly trained personnel, should have the power and responsibility of equalizing tax assessments among the local taxing units of the State.

D. Several of the Southeastern States have poor machinery for bringing about full collection of taxes. In some States the procedure is adequate but is not rigidly enforced. Rigid operation of adequate machinery for the full collection of school taxes is essential to proper administration of local property taxes.

E. Administrative efficiency can be attained best when boards of education have a high degree of fiscal independence of other local agencies of government. Effective fiscal independence for boards of education has not been completely attained in all the Southeastern States and this goal should be achieved as quickly as possible.

F. A review of the criteria scale shows that some States should provide for improved plans of budgeting, accounting, auditing, and reporting. Better accounting procedures will provide more accurate bases for evaluating existing programs and will provide data for setting up projected programs of improvement.

3. *A Recommended Program for Improvement of State and Local Financing of Public Schools.*—A program for the improvement of State and local plans for financing the public schools cannot be formulated exclusively on the basis of improved financial procedures. It involves the improvement of all phases of the educational program. Therefore, the recommended program set forth below encompasses a broad approach to the whole problem of school improvement.

A. Cooperation of State and local educational authorities with organizations directly interested in education, such as State Teachers' Associations, the Congress of Parents and Teachers, and with other professional and lay organizations and groups interested in schools should be continually sought. Professional organizations of teachers and administrators and the Congress of Parents and Teachers should be strengthened in all States. These organizations have been powerful influences for the improvement of financial and educational programs. In some States the work of these groups and that of the department of education needs better correlation in order to make the efforts of all organizations more effective.

B. Programs of research directed by the State department of education, the State Teachers' Association, the institutions of higher learning, and local educational agencies should be organized so that the researches are functional. There is a great deal of unused professional talent for doing research in each State. The State Department of Education should take the initiative in synthesizing the results of these researches.

C. Adequate records, reports, and interpretations should be available at all times for lay consumption, as well as for professional use.

D. A plan whereby the legislative and administrative divisions of the State Government are kept fully and reliably informed of educational needs is both desirable and important.

E. The States should cooperate with each other in promoting both regional and national studies of educational problems and policies. The accomplishments of the Southern States Work-Conference demonstrate the feasibility and desirability of regional cooperation.

F. Further study of the proper areas of State school administration and local school administration and the development of an understanding of desirable relalationships will remove many obstacles to progress.

G. State departments of education should be reorganized in some States in order that the work of the personnel might be made more effective. Numerous divisions in a State department of education cause inefficiency in State administration in the same degree that small local administrative units cause inefficiency in local school administration. Appropriations for the maintenance of departments of education should be increased in many States in order to increase the personnel sufficiently to render necessary state services. The primary function of State school administration is to increase the effectiveness of local school administration rather than to replace it. Therefore, State departments of education should be organized and staffed primarily to render expert consultative services and leadership to school units rather than to exercise routine controls. The department of education should also serve as the mobilization center for organizing the efforts of local leadership for educational progress.

4. *Recommendations Concerning Federal Aid.*—Thus far these recommendations have dealt with State and local plans for financing schools. The primary concern has been to achieve maximum efficiency and economy from the funds now being spent and to suggest areas in which local and state school financing should be improved.

Assuming that State and local plans of financing public schools should be revised so as to achieve maximum efficiency and economy, and that all State and local school units should put forth the greatest possible effort to support their own public schools, the educational program of the Southeast would still be far inferior to the average program in the Nation as a whole, because the region does not have the financial resources from which to finance an adequate program of public schools.

It is an inescapable fact that Federal support for public education presents the region's sole hope of eliminating many of its educational inequalities and financing a public school program which will compare favorably with that of other States in the Nation. In order to attain the national average for current expenditures per pupil in average daily attendance (1938) the Southeastern States would have needed $160,466,486 in addition to the actual current expenditures for 1938. This amount is in the direction of the total which the Federal Government must eventually appropriate for public schools in the Southeast.

In recommending Federal aid for public schools, however, there are certain basic principles which should accompany such recommendations. Federal aid without Federal control is basic. There must be genuine faith in the long term efficacy of State and local management of education. Instead of setting up Federal requirements involving a variety of conditions which must be met by a State before it can receive financial aid, the amount of money to be received by a State for financing education should be determined by an objective method which takes into account two factors: (1) the educational need of the State and (2) its financial resources to meet that need. The techniques for measuring both need and tax capacity are sufficiently well developed so that basic principles for determining an adequate formula to be used in allocating funds among the States may be written into legislation. This will closely limit the discretion of the agency having responsibility for allocating Federal funds and also assure that the distribution will not be influenced by political considerations.

Acceptance of these principles need not imply lack of interest in the efficiency of education on the part of the Federal Government. The United States Office of Education should continue to exercise and even extend its leadership through research, investigation, and conferences. Experimental programs in selected local school systems, or even within selected States, to demonstrate desirable reforms in the organization, administration, and purposes of education might well be initiated by the Federal Government. Federal interest in education could even go so far as providing special grants to all States for particular educational purposes for limited periods of time. Provision should be included in such legislation for the cooperation of State and Federal experts in formulating plans but Federal participation should stop short of possible coercion or compulsion.

Federal legislation for financial aid of education should include provision for a routine audit to determine whether funds granted have been spent for the purposes designated. Each State should also issue an annual report fully describing the use made of Federal funds for equalizing educational opportunity or for other purposes.

Thus Federal interest should be exercised through leadership, experimentation, information, and persuasion. It should avoid control by the veto power exercised through grants-in-aid or through coercive measures. Some educational leaders in the Southeast maintain that the Federal Government should insist upon the acceptance of minimum standards, in such matters as length of school term and teachers' salaries, before Federal funds are made available.

Curriculum[14]

These recommendations are not concerned primarily with concrete curriculum proposals. Such recommendations belong in a very technical field and for the present, at least, should be preceded by the proper coordination of agencies interested in curriculum construction. Accordingly, the following recommendations contain proposals bearing on the relationship of various official and unofficial agencies interested in the instructional program of the public schools:

1. *Relationships of the State Agencies to Curriculum Programs.*—A. General:

(1) Each and every agency in the State whose program involves education for its proper functioning should participate in the State curriculum program.

(2) The entire curriculum program should be democratically planned and every other agency concerned should have a place in such planning.

(3) In each State there should be some one agency which occupies a position of leadership that enables it to assume the necessary responsibility for guidance of curriculum work.

(4) Each phase of a curriculum program should be developed in proper relationship to other aspects, with one agency exercising democratic leadership with the voluntary cooperation of all other agencies.

[14] Recommendations relative to curriculum were taken, with a few minor changes, directly from *Administration of State Curriculum Programs*, Bulletin No. 5, Southern States Work-Conference on School Administrative Problems, Tallahassee, Fla., 1941.

B. The State Department of Education:

(1) The State Department of Education is the agency recognized by law which is in best position to exercise the democratic leadership needed.

(2) The State Department of Education has a responsibility to prescribe minimum standards for the personnel undertaking curriculum work.

(3) The responsibility for directing curriculum work in the State Department of Education should be placed in the hands of a person specially trained and supported by the necessary trained assistants.

(4) The organization of the Department of Education should be such as to provide for proper integration of the curriculum program with all other functions of the department.

(5) For guidance and development of the curriculum program there should be an advisory committee having representatives from other State agencies interested in curriculum functions.

(6) The advisory committee should serve as a policy determining committee, i. e., consider and approve all State-wide policies before they are made operative, and constitute an agency for the promotion of discussion by all interested groups before any definite curriculum policies are adopted.

C. Other State agencies:

(1) State agencies which should coordinate their educational functions as they relate to curriculum construction with those of the State Department of Education are: State Industrial (correctional) Schools, Conservation Commission, Health Department, Department of Agriculture, Department of Public Welfare, State Librarians, State Police, Highway Department, State Fire Marshall, and others.

2. *Relationships of Local School Administrative Units (County, City, Special District) to Curriculum Programs.*—A. Local school administrative organizations should be such as to make possible the employment of competent personnel to give adequate attention to curriculum work. If administrative units are not of sufficient size to permit this, then a plan should be devised to allow cooperation of several units to this end.

B. Local administrators should seek in every possible instance to exceed the minimum standard set by the State for the employment of personnel for guidance of curriculum study and for supervisors of instruction.

C. Local units should develop plans for securing democratic participation in curriculum development on the part of every teacher and such plans should include representative laymen.

D. Local school authorities should assume full responsibility for seeing that the needs and resources of each community are fully represented in the curriculum.

3. *Relationships of the Individual School to Curriculum Programs.*—A. The individual school should assume full responsibility for building a program of instruction and activities around the immediate needs and problems of the particular community and the resources available for an effective attack upon such problems and needs. This means that: (a) encouragement should be given for individual teacher experimentation with the local program; (b) encouragement should be given local school faculties to vary content and method in accordance with basic principles and local conditions; (c) responsibility must be felt for sharing local experience with others, and for checking experience against practice formulated in other areas.

4. *Relationships of Colleges and Universities to the Curriculum Programs.*—A. Definite responsibility rests upon all colleges and universities for participation in the planning, execution and evaluation of all curriculum work done within their constituencies, within a general framework in which legally constituted agencies likewise are participating for improvement of instruction. Colleges and Universities can and should make the following contributions:

(1) Make available any staff members whose training and experience could be utilized in better planning and executing curriculum programs.

(2) Make available materials and equipment including libraries, laboratories, secretarial assistance, supplies, and work space.

(3) Make flexible arrangements with regard to courses, credits, degrees, and in-service education, so as to meet the needs of teachers as they discover those needs in the process of improving curriculum programs.

(4) Make available additional staff whose primary concern will be the furnishing of guidance and help to public school teachers in service, which will assist these individuals in carrying on a continuous program of curriculum improvement and in a proper use of existing materials.

(5) Provide the necessary staff for cooperating with other agencies such as the State Department or regional accrediting agencies in visitation and improvement of schools.

(6) Carry on special studies and experiments and arrange courses which are likely to have some significance for the State curriculum program.

5. *Relationships of the Organized Profession to Curriculum Programs.*—A. State education associations

with their affiliates and other State professsional organizations in education can and should cooperate in the development of a curriculum program by:

(1) Active participation in curriculum study and discussion groups by official delegates of the various organizations.

(2) Circulating packets of curriculum materials, drawn from local, State, regional and national sources such as those provided by the United States Office of Education.

6. *Relationships of Certain Lay Organizations to Curriculum Programs.*—A. State organizations of a lay character such as the Congress of Parents and Teachers, the American Legion, the Farm Bureau, the American Association of University Women, the General Federation of Womens Clubs, Kiwanis, Rotary, Lion Clubs, Labor Organizations, and Cooperative Associations or Unions which have an educational committee or have expressed their interest in education in some tangible way may serve in an advisory capacity to workers on a State, local or regional curriculum program in some of the following ways:

(1) A representative from each of these State organizations might act as a member of an advisory committee which will serve as a "sounding board" of lay opinion on curriculum developments proposed by the State Department of Education.

(2) Such organizations, after careful study of plans, purposes and procedures of curriculum projects, should adopt those aspects of a curriculum program in which they can logically take an active part, and on which their pronouncements will have influence.

7. *Relationships of Interstate and Regional Curriculum Projects to Curriculum Programs.*—A. Interstate and regional agencies working in the curriculum field should be coordinated with all legally recognized curriculum bodies, State or local, and should act in an advisory capacity because of the extra-legal bases on which they are constituted.

B. Cooperative activites among interstate and regional groups should consist of the exchange of information on proposed curriculum developments and on all completed curriculum publications in order to pool resources and avoid unnecessary duplication of effort.

8. *Relationships of Federal Agencies to Curriculum Programs.*—A. Every effort should be made on the part of Federal agencies to continue and to support integrated school systems by adjusting their programs in the so-called special and neglected fields in education to generally accepted State curriculum principles and practices.

B. The Federal Government, through the Office of Education, which already summarizes and disseminates information on curriculum trends, should expand its services in the form of exchanges, on a loan basis, so as to make available for curriculum purposes all published materials of any governmental agency.

The foregoing represents what has been done in some instances and what can be done in most instances to realize the acceptable working relationships among those interested in curriculum development. No one State has realized all the possibilities suggested for cooperative effort, but many States are largely observing the proposals in individual items.

If some State were to take the lead in putting these recommendations into effect and recording successes and failures in an objective way, the purpose of these recommendations, rather than the letter of them, could be more speedily accomplished in the Southeastern States.

Teacher Training

1. *Recommendations for a Unified Program of Teacher Education for Teachers in Secondary Schools.*[15]—The program of action adopted by the Southern Conference of State Directors of Teacher Education and Certification at Atlanta in April 1941, is recommended as the basis and practice for teacher education in the Southeast. Those States which have not done so should formally accept the program and, more important, State Departments of Education should attempt earnestly to make the plan function. The program follows:

A. Criteria for program of education for teachers in secondary schools:

(1) *Teacher education in a democracy must have a definite objective.*—The objective of teacher education is to make available leaders in learning who have (*a*) an understanding of the purposes and functions of education in our democracy and (*b*) the ability to guide learners at the different learning levels in the selection of worthwhile activities and experiences and to aid learners in using their abilities, aptitudes, experiences, and interests toward the achievement of their life purposes.

(2) *Teacher education must lead to an understanding of the major problems of social life.*—There should be provision in teacher education for broad general knowledge which offers reasonable guarantee that the prospective teacher shall, through extensive study in such areas as language, arts, fine arts,

[15] These recommendations were taken directly from *A Unified Program of Teacher Education and Certification in the Southern States*, Sponsored by The Southern University Conference in cooperation with The Southern Association of Colleges and Secondary Schools, 1941, Frankfort, Ky., pp. 16–19.

practical arts, mathematics, science, social sciences, health, and welfare, acquire an understanding of the major problems of social life and their implications for the learners whom he leads, for his fellow workers, for the parents, and for the public in general.

(3) *Teacher education must develop leaders in the major learning areas and learning levels.*—There should be provision in teacher education for intensive study of the problems in those teaching areas and learning levels (*a*) in which the prospective teacher is interested, (*b*) for which he has aptitudes, and (*c*) in which there is reasonable promise that he may find employment.

(4) *Teacher education must provide for professional integration and orientation.*—Provision should be made in teacher education whereby the prospective teacher may employ his knowledge and understanding in learning situations, and to that end his preparation should include (*a*) understanding of the vital problems in connection with the growth and development of children; (*b*) an understanding of the organization and control of learning programs in school; (*c*) knowledge and understanding of the application of methods and uses of materials suited to the different learning levels; and (*d*) an opportunity to integrate his own educational experience by actual teaching under competent guidance.

(5) *Teacher education must provide for selection and guidance and for evaluating results.*—Teacher education should provide a workable plan of pretraining selection, in-training guidance, and follow-up evaluation to the end that only those persons may be permitted to complete teacher education curricula who manifest during their preparation (*a*) physical, emotional and mental fitness, (*b*) an appreciation of the science and art of living, (*c*) a genuine interest in teaching as a profession, (*d*) an understanding of the implications of education as a constructive agency in maintaining and improving our American way of life, (*e*) capacity for becoming leaders of learners, (*f*) an aptitude for the teaching area and school level chosen, (*g*) satisfactory academic achievement, and (*h*) adequate general scholarship.

B. These common concepts should be expressed in the form of a minimum pattern to be used as a basis of certification as follows:

(1) The amount and quality of training of an out-of-State applicant for a secondary certificate should be substantially equivalent to that required for the secondary certificate in the State in which he applies.

(2) The applicant should be graduated with a baccalaureate degree from a four-year college accredited by the Southern Association of Colleges and Secondary Schools, or similar accrediting authority.

(3) The applicant should show by an official transcript that he has completed a curriculum substantially as follows:

(*a*) There shall be a transcript of college work showing that the applicant has a broad general knowledge of the major problems of social life represented by approximately 2 years of study (10–12 semester hours) each in English, Sciences (mathematics may be included), and Social Sciences, and 4 semester hours in Health, Physical Education, and Safety.

(*b*) The transcript of college work should show that the applicant has had adequate preparation in the areas in which he desires to teach; a minimum of 24 semester hours in English, 18 semester hours (based on 2 high school units) in Foreign Language, 27 semester hours in Science, 27 semester hours in Social Science, and 15 semester hours in Mathematics. Additional individual subjects may be added to the certificate if the applicant has 12 semester hours in each.

(*c*) The transcript of college work shall show that the applicant has had 18 semester hours in Education and has (1) an understanding of how children learn and the implications of the learning process for secondary pupils (at least one course in Educational Psychology), (2) an understanding of the learning programs in the secondary school, and a knowledge of the materials and methods suitable to the needs of secondary pupils (two courses relating to organization and curriculum of the secondary school), and (3) an opportunity to integrate his own educational experience by actual teaching in a secondary school under competent guidance (six semester hours or 90 clock hours in related methods, observation, participation, and directed teaching in a secondary school).

(*d*) If an applicant has 15 semester hours in Education distributed as in "*c*" above, he may be issued a temporary certificate, and given 1 year in which to complete the additional 3 semester hours; and if the applicant lacks not more than 6 semester hours in his teaching field, or fields, and in General Education, he may be issued a temporary certificate and given 1 year in which to complete the additional semester hours.

(4) The 6 semester hour course in directed teaching should include a minimum of 90 clock hours in integrated work in methods, observation,

participation, and teaching with a minimum of 40 percent of the time devoted to actual teaching.

(5) Each State in the Southeast should list the colleges which meet the standards set out in these agreements, and which have their teacher education programs organized and conducted according to the spirit of these agreements, and furnish each State Director of Teacher Training and Certification with this list for his guidance in dealing with the problems of reciprocal relations; and this list should be kept up to date.

2. *Training of Elementary Teachers.* It is further recommended that State Departments of Education through their Directors of Teacher Training and Certification work out a similar action program for the training of elementary teachers.

Continuity of Service for Public School Teachers [16]

1. As a beginning toward improving practices relating to continuity of service for teachers the following general principles should be agreed on as the basis for practices:

A. The general welfare of children is best provided by the continued service of competent teachers.

B. An adequate code of professional ethics defining relationships among members of the teaching profession and between boards of education and the teachers is essential to the successful administration of continuity of service of teachers.

C. Continuity of service for teachers is better obtained and administered in the larger local units of school administration than in the smaller districts.

D. A competent teacher has a right to expect the opportunity for continuous employment as long as he renders efficient service.

E. Administrative procedures and practices should be such as to encourage competent teachers to remain in the profession.

F. Successful operation of continuity of service for teachers depends upon an adequate State system of certification of teachers. Such a system is better established and administered under regulations of the State Board of Education than by statutory provision.

G. Teachers should be protected in the promotion of policies for the welfare of public schools.

H. Successful operation of continuity of service for teachers should be accompanied by or preceded by an adequate teacher retirement system.

2. Not until desirable practices are generally observed throughout a State should any movement toward law be undertaken. Legislation is not effective unless practice is sufficiently advanced to support the legislation.

3. As a basis for bringing about improvements in any State, it is necessary to have a thorough knowledge of present practices. A State must begin where it is now, and plan improvements that will result in successively better conditions.

4. Where teachers do not at the present time have adequate protection from dismissal during the year, it will be desirable to take steps to give needed protection in this respect. Employing boards might be persuaded to adopt and follow the policy of employing teachers for the full term, subject to dismissal only for cause and after opportunity for hearing. This step will probably be needed in very few communities during the war.

5. In the administrative field there are undoubtedly a number of improvements to be brought about in many communities. Small districts where one-teacher schools have to be maintained, small and inadequate high schools, meager teaching supplies, an unsatisfactory salary schedule, selection of teachers by lay boards rather than by the professional head of the school, and other similar unsatisfactory administrative practices will need to be overcome where they exist. The following are some of the other steps that will need to be taken in communities of States where such practices are not now common. No single one of these steps will solve the problem, yet each step will contribute to the solution:

A. Notification of all teachers regarding reappointment at least by the close of school during any year.

B. Employment of teachers under a continuing contract or at least under a longer term contract than an annual contract. In some States this cannot be done without changing the law, but in many States it is possible if the employing board will adopt such policy.

C. Dismissal only for good cause after an opportunity for a hearing of teachers who have served satisfactorily for a specified length of time such as two or three years.

It should be clearly recognized that if such steps as those listed above could be taken by all employing boards there would be no need for legislation. However, it will also have to be recognized that some boards probably would, for one reason or another, refuse or fail to adopt even some of the most desirable and necessary practices. Legislation will then become necessary to give protection in isolated cases.

[16] Source of recommendations is *Continuity of Service for Teachers in Southern States*, Southern States Work-Conference on School Administrative Problems, 1940. Published by Florida State Department of Education, Tallahassee, Fla.

6. In some States desirable legal safeguards for continuity of service have been or may be included in a single bill and enacted as a comprehensive unified program. Such a law is commonly designated as a tenure law. In other States legal safeguards may be adopted over a period of years rather than all at the same time. Thus one legislative act may relate to procedures for dismissing teachers during the year; another which may come at a different session of the legislature may provide for continuing instead of annual contracts; and still another may provide for notification regarding reemployment by a designated time not later than the close of school. All legislation relating to continuity of service should grow out of and be consistent with principles which are commonly accepted and recognized as valid. Moreover, every legislative act, no matter with what phase of the program it deals, should be consistent and in harmony with other acts which will logically grow out of the accepted principles.

7. The proposal for legislation relating to continuity of service or tenure for teachers should ordinarily originate with the State teachers' association. The appointment of a committee by the teachers' association to work on the problems of continuity of service is a logical starting point. This committee should be representative of the entire teaching profession, and should be composed of at least seven members, a class room teacher, a high school principal, an elementary school principal, a superintendent, a State Department of Education representative, a supervisor, and a college representative. It is well to emphasize that the chosen committee should be retained as far as practicable over the period of years of study in efforts toward enactment of desirable legislation.

8. Active support of board members, the people who patronize the schools, governors, and members of legislatures should be sought through a definite program of education.

Negro Education [17]

In every State of the Southeast there are problems in the field of Negro education which should be solved in the immediate future. The practicable solution will depend to a great extent upon the situation and needs of the individual States, which vary somewhat although the basic needs are more or less common to all States. The following steps are recommended for consideration; from among them and through analysis of the situation within the State, the leaders in each State should be able to evolve a practicable program which will result in material improvement.

[17] These recommendations with a few minor adaptations were taken from *Negro Education*, Bulletin No. 6, Southern States Work-Conference on School Administrative Problems, 1941, Tallahassee, Fla.

1. *Continuing Study and Evaluation of Needs.*—Each State should have some definite plan for studying and evaluating the educational need of both races. There should be advisory committees, representing both races and including outstanding lay leaders, representatives from the institutions of higher learning and from the public elementary and high schools, to aid State school authorities in determining studies which should be made, and to assist in integrating these studies and in making available the results. These committees should evaluate the relative needs of education for the races and assist in developing a program which will assure needed improvements in proper relationship to all other phases of education in the State. The State Superintendent or Commissioner of Education should be responsible for coordinating and integrating work.

2. *Assuring Better Understanding.*—Procedures for assuring better understanding constitute one of the most important steps that can be taken. There are many members of both races who do not adequately understand the problems involved. Some members of the Negro race may not properly appreciate the difficulty of solving the financial and other problems which must be solved before some of the inequalities can be removed. On the other hand, some members of the white race may not fully appreciate the difficulties under which Negro schools have had to operate in a number of areas and may not have realized the significance or extent of the problems involved. In addition to the organization of committees to assist in continuing study and evaluation of the problems in the field, the following steps should be helpful:

A. *Group Conferences.*—Group or district conferences with county and city superintendents of schools, board members and other outstanding leaders should be organized and conducted under the guidance of the State Department of Education. At such conferences, the State Superintendent or Commissioner of Education might preside and guide the discussion which should be planned to cover all of the significant problems involved. The first series of such conferences might be devoted to a review of recent trends and developments in the field, to a summary of court decisions, and to a discussion of fundamental principles which should be followed in developing the program. Later conferences could give attention to details of the program, perhaps considering some of the recommendations of the committees discussed above. These group or district conferences might properly either be preceded or followed by a State-wide conference attended by outstanding educational leaders and

in which the committee designated to guide the study and evaluation of problems could participate.

B. *Local Meetings.*—In addition to properly planned and State-sponsored district and State conferences, encouragement should be given to the organization of local meetings. Such meetings might include the leading officials and citizens of the county or city involved and might serve as a forum for a discussion of problems in the field of Negro education as related to other aspects of education. Too great emphasis cannot be placed on the importance of careful planning for such conferences. Leaders should be very carefully selected for their ability to guide discussion constructively and to center attention on fundamental principles and issues.

C. *Study Groups.*—In each State, there should be a definite plan for stimulating the organization of study groups and for bringing into college courses various problems connected with the education of Negroes in the State as well as in the South. Some of the steps which might be taken are as follows:

(1) Seminars might be offered in State Universities and other colleges or universities of from two to six weeks during summer terms. Such seminars should provide for a comprehensive and frank discussion of all major problems relating to education of Negroes in each State. These seminars should be open to superintendents of schools and other educational leaders and should be guided or directed by someone who has had considerable experience and has devoted extensive study to the problem of Negro education. The State agent or other person in charge of the program of Negro education in the State might assume the major responsibility for the seminar.

(2) In each college, there should be at least one course which has a major unit in problems in Negro education and race relations. Such a course should probably be open to juniors, seniors, or graduate students and should be specific rather than general.

(3) There should also be courses in Negro colleges which center attention specifically on the study of problems in the field of education for Negroes as related to the entire educational program. It should be possible to have both seminars and units in regular courses which might be offered not only during summers but also during the regular school term. These should be available for Negro principals and teachers and should be directed by competent instructors of both races who know and understand the history of the struggles and development of the Negro race.

3. *Improving State and Local Financing of Schools.*—Those interested in removing inequalities in any phase of education, such as inequalities between urban and rural schools or inequalities between white and Negro schools should give every encouragement to the improvement of the systems of State and local financing of schools in the various States. (See recommendations on School Finances.)

4. *Insuring More Adequate Salaries.*—In States in which there is now a marked differential between salaries of white and Negro teachers with the same competence (defined to include not only training and experience, but all other pertinent factors), plans should be made for bringing about needed adjustments. In fact, the State has a responsibility for assisting through its standards and policies to make these adjustments possible. If adjustments must be made entirely by local school administrative units and out of local funds, they will be impracticable in a number of administrative units without reducing salaries of white teachers which, of course, will be undesirable. Complete adjustments will, undoubtedly, not be practicable immediately in many administrative units and in a number of States. In many cases, where funds are particularly limited, the first steps toward the elimination of salary differentials might begin with those teachers who hold certificates based on two or more years of college work. States can also take another step which, to some extent, has a bearing on the question of salaries. The State can assist in regulating teacher loads by calculating need on the basis of attendance of children of each race. The number of teachers of either race which may be employed will, therefore, need to be somewhat proportionate to the number of children in attendance at school. Establishment of standards in this area will assure more equitable teacher loads and, consequently, more equitable use of the funds available for salaries.

5. *Providing Other Facilities and Services Needed.*—As in the field of salaries, State standards or regulations alone cannot possibly assure entirely equitable provision of all needed school facilities in the various administrative units. State regulations, in other words, cannot solve the problem completely because leeway must be left for local initiative. However, the establishment of desirable State standards can assist materially in assuring that other facilities needed for the schools in addition to teachers will be reasonably adequate. These standards should recognize the desirability of

and assure the provision of various instructional supplies, including library books, reasonably adequate equipment, transportation which meets minimum requirements and buildings which are reasonably adequate even in the poorest administrative units. A satisfactory program of State and local financing of schools will assist materially in eliminating many of the inequalities which now exist between various groups and races.

A. *Improving School Organization, Administration, and Supervision.*—Schools very seldom rise far above the level established by the administrative units in which they are located. The establishment of higher qualifications for superintendents and the scheduling of elections at a time when no other political elections are being held should assist materially. Competent local leadership is just as essential as improvement in State systems of school finance and other related areas if handicaps with which the Negro schools in many sections are confronted are to be removed.

B. *Teacher Improvement.*—Although standards for training of teachers in the South compare favorably with those in many other States, there is still in many areas a tendency to employ teachers who meet only the barest minimum standards. Particularly is this true of employment of Negro teachers in rural areas. Standards for selection of teachers should be raised for practically all rural schools. Programs of teacher training should be revised in the light of the needs and problems of those with whom they will work. In-service teachers should be given further incentive for improvement. Teachers should also be given more assurance of continuity of service in their positions as long as their work is satisfactory and they continue to improve.

C. *Improving the Curriculum.*—The curriculum should be adjusted to assure that the educational program will better meet the needs of the Negro people of the community and help them to improve in health, in personal, family and community living, in economic status, and in fact in every other respect. If the schools are to become the force they should be in lifting the levels of the Negro communities they serve, a much more dynamic program must be developed in general in this area.

D. *Transportation, Consolidation and Buildings.*—The problem of transportation for Negro pupils has hardly been touched in many areas. There are still numerous instances where children are walking 4 or 5 miles to school and of other children who cannot get to school because of distance. Systems of State aid should make possible transportation without extra local financial burdens when such transportation is necessary to provide adequate educational opportunities for the children. This will make possible the discontinuation of many small schools and the establishment of more adequate centers. Surveys and other comprehensive studies are needed as a means for carefully planning this program and for developing adequate school building and equipment programs.

E. *School Attendance.*—Compulsory attendance and child-labor laws should still further be strengthened in a number of States. There are still too many children, particularly children of the Negro race, who drop out of school for work or even for less important reasons.

6. *Establishing More Adequate Standards.*—The problem of preparing adequate minimum and desirable standards for schools is, of course, related to every aspect of the program for both races but is particularly important for Negro schools. Schools can be found today not only for Negroes but also for whites, particularly in rural areas, which do not meet any conceivable, desirable standards. Such schools have merely provided a place from year to year where children can get some instruction. In the first place, the local school administrative unit, which is primarily responsible for the organization and administration of schools is responsible for seeing that an adequate minimum in the way of educational opportunity is assured for all children in the unit. The matter of establishing adequate standards, however, cannot be left entirely to the local school units because some of them have such limited resources that even the best standards they could afford to establish would be entirely inadequate. The State, then, must assume the leadership in assuring that adequate standards are established for all children in the State and that sufficient funds are made available and are so distributed and administered that these standards become practicable. This does not imply, however, that the mere act of establishing a requirement is sufficient. In fact, there is danger that the States may go too far in centralizing responsibility. The major problem is to determine how adequate standards can best be established and administered through cooperative effort of State and local school officials and teachers.

7. *Improving State Services in the Field of Negro Education.*—All States, directly or indirectly, have recognized their responsibility for providing leadership and guidance in the field of Negro education. Every Southern State provides through its State Department of Education and its institutions of higher learning material assistance in this field. In many cases, these services

have either been made possible or have been greatly enlarged as the result of grants from philanthropic agencies and institutions. States should continue to recognize their responsibility in this area and should take every step possible to enlarge and improve the services provided. There has sometimes been a tendency to leave most of the responsibility for Negro schools to the persons or divisions assigned to that work. During coming years, it should be recognized that maximum results can be attained only through increased cooperation from the other divisions and services. Only when all administrative supervisory, teacher training, and other agencies of the State direct proper attention to the field of Negro education can the rate of progress be improved.

8. *Assistance From Philanthropic Agencies.*—Philanthropic agencies deserve much credit for many forward steps which have been taken in the field of education for Negroes. These agencies should be given every encouragement to continue to provide guidance and assistance even to a greater extent than during previous years. Moreover, many benefits can still result from continued financial aid from these philanthropic agencies to assist the chief State school officers of the South to retain and continue the services of the State Agents for Negro Schools during coming years. During recent years, philanthropic agencies have withdrawn, or proposed to withdraw, some of the grants with the thought that the States should take over more services. This move is undoubtedly logical, yet it should not definitely take place until assurances have been received that the States are in position to continue the services and make further improvements during coming years.

It must be recognized that at the present time, at least, it would be impossible for most of the Southern States to provide school facilities for Negroes which are completely equal to those provided by whites without greatly and materially handicapping the white schools and even without reducing salaries for white teachers. Recent developments have indicated that the Southeastern States are willing to face the problem of improving Negro schools and will voluntarily make many needed improvements in the immediate future. It becomes increasingly obvious, however that the Southeastern States cannot satisfactorily solve this problem without material financial assistance from the Federal Government.

The tax base available to the States to use in supporting schools and other governmental functions is being narrowed year by year as the result of the extension of Federal taxes. The Federal taxing policy, therefore, is increasingly making it impracticable for the Southeastern States to extend their taxing policy program sufficiently to remove existing inequalities and to meet satisfactorily the needs of all schools. Moreover, Federal policy, through constitutional provisions and court decisions, has established the necessity for providing educational facilities for Negroes and for seeing that these facilities are equivalent to those provided for whites. Since Federal policy has been significant in establishing requirements which must be met by the various States, and, likewise, has been significant in limiting the taxing ability of the States to provide resources to meet these requirements, it seems reasonable that Federal policy should be responsible for determining that the resources of the Nation should be used to provide the educational facilities needed for the children of the Nation.

PUBLIC HEALTH DEVELOPMENT[1]

In periods of crisis the weaknesses of a society make their appearances, frequently to confuse and obstruct efforts at dealing with the forces involved. The high rate of rejection because of physical disabilities of draftees for our citizens' army has once more proclaimed what competent health authorities have long recognized: The state of the health of the Nation is far below the standard at which it should be maintained both for the safety of individuals and of the Nation as a whole. Economists may study and plan for the economic welfare of a region or the Nation but their plans require the best possible state of public health for their full realization. It can be readily seen that we are faced with the familiar "vicious circle" when we relate health to economic conditions. Poor health affects seriously the capacity of a people to produce or even to enjoy the fruits of their work. Poverty in economic resources in turn prevents a region or Nation from realizing a high standard of health. In the Southeast, with its low per capita income, there are undoubtedly thousands of persons who are ill-fed and disease ridden, who must remain poor because of low energy capacity and who cannot even enjoy many of the products and services available because of physical disabilities, which often may not be immediately apparent.

Many indices are cited in these days as proof of the adjustment or maladjustment of the social order. Among them, those which need to be weighted heavily are such figures as morbidity rates, death rates, medical and hospital costs, per capita expenditures for public health facilities, ratio of nurses, doctors, health officers, etc., to the population. An economic structure that is possessed of abundant but inadequately utilized resources is certain to express itself in such indices.

Importance of Public Health Planning

A public health program in its broadest aspect would be concerned with all of those aspects of the material level of living which promote health. Undoubtedly before the health of the Nation has attained the high standard that is possible, economic experts and medical experts must sit at common conference tables. But public health has its narrower and more institutionalized field. The present organization of public health forces is focused upon maintenance of the health of the people at a normal level where individuals are free from disease and defect. It seeks not to cure but to *prevent.* It is a step ahead of the most advanced medical therapy which seeks to restore normal bodily functions. The public health program seeks to obviate, in so far as medical knowledge permits, the loss of the normal physical processes of the organism. While it must all too frequently give attention to curative medicine, its true objective is conservation. Public health is decidedly a field in which the planner must function. Threats to physical well-being of the population must be studied, anticipated, and obstructed. In the past decade, public interest in conservation has risen like a mighty tide. Water resources, scenic resources, the soil, forests, minerals, oil, wildlife, all have come in for attention and positive efforts for their conservation have been made on a national scale. It is doubtful that the human resources of the Nation have been given equal consideration, although within recent years an awakening to the significance of health conservation has manifested itself both locally and on a national scale.

In the Southeast which, because of its high birth rates, is increasingly being thought of as the cradle of the Nation, conservation of human life assumes considerable significance. The public health program in this region is also significant because more than in any other section of the country there are serious health hazards. The low income of the people, large groups of both Negroes and whites who are retarded in educational opportunities and hence ignorant of health practices, the moist, warm climate which favors the development of microscopic organisms, the rapid growth of urban centers in the past two decades, and the traditional food habits common to people living in subtropical areas are conditions which call for an aggressive health program.

Public health activities constitute no threat to private practice except where the costs of the latter are prohibitive of wide distribution of services with the consequence that a large sector of the population cannot procure them. It should be recognized that these are the simple facts: Our physicians are indispensable to public health, and public health is good for the practices of doctors. The downward trend of the general death rate has been the work of practicing doctors, microbe hunters, engineers, healthmen, and nurses, all working together to defeat misery and death. Yet it is not likely that this battle would have even begun, at the century's turn, had not doctors gained those powerful allies, the public

[1] Prepared by Dr. Frank D. Alexander, Planning Technician, Atlanta Field Office, National Resources Planning Board, with the guidance of Dr. Thomas F. Abercrombie, member, Southeastern Regional Planning Commission, and director, Georgia State Health Department.

healthmen. The early work of these healthmen was often futile—their concern being the removal of filth of all kinds whenever such filth in their judgment endangered the lives or health of the inhabitants.

Microbe hunting revolutionized all that and typhoid fever became a public ill no longer to be battled by the private physician. Engineers went to work in blocking off these typhoid germs. Pure water and milk became the goals of the healthmen. Then the healthmen developed official mortality bookkeeping to inform the doctors of the death rates from the various diseases they were treating, enabling them to attain some degree of reliability for their treatment methods.

City, State, and Federal health laboratories began to give family doctors mass death-fighting ammunition-serum for diphtheria and other diseases. The microbe hunters, X-raymen, chest surgeons, public healthmen, and nurses—in cooperation with family physicians—attacked tuberculosis, with the result that even though the disease is still a major cause of death in the Nation, its rate has been greatly reduced. Public healthmen began to inspect public schools, reporting their discoveries to family doctors for action. Thus, almost every cause of death was now being fought among the whole people, not solely among individuals already threatened. And the victories were the work—not merely of the doctors alone—but of a new health army composed of nurses, engineers, doctors, public healthmen, microbe specialists, and chemists. Careful studies show that, instead of its being invaded, private practice has actually been expanded through the activities of the public health program. Thus the role of public health is that of a catalyst—it organizes the medical forces of a region or of the Nation for the conservation of the people's health. It is the over-all planner—aiming at democratic and volunteer cooperation of the medical profession and the public. Institutional patterns have already developed in the field of public health which are peculiarly American and which will increasingly give direction to medical service without seriously violating private practice, except when such practice becomes too costly, but actually leading private practice to a position of more effective service as well as giving it economic stability. The public health movement is simply another aspect of social organization evolving to meet the demands of our complex modern society—and because it is this, orderly planning of its development is imperative. Such planning to be effective and democratic must receive the contributions not only of the technically equipped health expert but also of the medical profession and of the average citizen.

Public Health Problems

The function of public health must be reinterpreted as the concern of the entire people. The limited concept, too frequently applied to public health programs, that they are for the poor and underprivileged only, must be eradicated from the thinking of all classes of the population—the poorer groups, and especially the middle and upper classes. The activities of health departments which concern all classes are numerous (see table XIV, pp. 200–01). The direct medical attention which is given the less fortunate economic groups is only one segment of the health program—sanitation, milk inspection, immunization, physical examinations in public schools, maternal and child health clinics, nutritional clinics, syphilis clinics, etc., are services for all classes and should be so conceived.

TABLE I.—*Sources of nutrients in diets of farm operators whose diets were in the money-value range $2.08–$2.76 per food-expenditure unit per week, Southeast and North and West*[1]

Food Group	Percentage of calories from specified food groups		Percentage of protein from specified food groups		Percentage of calcium from specified food groups		Percentage of phosphorus from specified food groups		Percentage of iron from specified food groups		Percentage of vitamin A from specified food groups		Percentage of thiamin from specified food groups		Percentage of ascorbic acid from specified food groups		Percentage of riboflavin from specified food groups	
	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West	Southeast	North and [2] West
Butter and other fats	21	17									10	25						
Dried vegetables									2	6								
Eggs			4	7					5	8	3	7					4	6
Grain products	38	27	37	28	19	8	40	20	41	21			27	14				
Leafy green and yellow vegetables					6	3			10	4	28	23	9	4	40	16	7	4
Meat, poultry, fish	6	8	19	24			9	15	15	21			26	24			18	18
Milk or its equivalent	15	16	28	25	69	73	36	38	11	10	11	15	17	15	12	9	60	50
Other vegetables and fruits [3]									3	7	4	10	2	9	18	28	3	6
Potatoes, sweet potatoes	4	6					2	8	5	14	36	9	6	22	14	27	4	8
Sugar	9	15																
Tomatoes and citrus fruit															14	18		
Total accounted for	93	88	88	84	94	84	87	81	92	91	92	89	87	88	98	98	94	92

[1] Compiled from tabulations in Hazel K. Stiebeling and others, *Family Food Consumption and Dietary Levels, Five Regions*, Farm Series, U. S. Department of Agriculture Miscellaneous Publication No. 405, 1941. (Subsequently referred to by title only.)
[2] New England, Middle Atlantic and North Central, Plains and Mountains, and Pacific Regions.
[3] Includes all vegetables except potatoes and sweet potatoes, tomatoes, dried vegetables, and leafy green and yellow vegetables; all fruits except citrus.

Selected health problems of the Southeast include nutrition and the incidence of several diseases as indicated by mortality data. In general the differences between health problems of the Southeast and those of other regions are largely differences in degree rather than in kind. True, areas of malaria prevalence occur most frequently in this region and Southwestern United States, but the disease exists in California and occurs periodically in areas north of the Ohio River. Tuberculosis exhibits excess prevalence in certain southern areas but is a public health problem over the entire Nation. Pellagra occurs throughout the Nation in degrees of recognizable prevalence which vary with economic differences. It would hardly be correct to say that the nutritional deficiences which cause it are peculiar to the Southeast.

Following the discussion of selected health problems, the facilities available for meeting these and other health problems are described, including the organizational structure and financing of State and local health programs, hospital facilities, and the number and distribution of physicians in the region.

Nutrition

Each year brings new discoveries of the significance of nutrition for the maintenance of health. There is a considerable body of scientific information relating to nutritional standards but only a limited amount of this knowledge has been acquired by the people and undoubtedly a still smaller proportion has been translated into their dietary practices. Information relating to the people's dietary habits is gradually being accumulated.[2]

Rural Families[3]: White Farm Operators[4]

The Sources of Nutrients in the Diets of Farm Operators.—A comparison of the food sources of diets within the money value range $2.08–$2.76 per food-expenditure unit[5] per week of farm operators in the Southeast and the North and West is presented in table I. Food energy is provided primarily by fats and carbohydrates. It is needed to carry on the internal work of the body and to provide fuel for all external activity. The importance of grain products in the Southeast as a source of energy is apparent when it is noted (table I) that 38 percent of all calories were from this source. In the North and West the source of bodily energy was less concentrated in the grain products group.

Proteins are essential to the structure of various tissues, especially muscles, and to numerous regulatory mechanisms of the body. Proteins are found in many kinds of food, but not all are equally effective in meeting the needs of the body. Milk, eggs, meat and fish supply proteins of high quality, whereas grain products and mature beans or peas provide proteins of lower quality. At every level of money value of food for both the Southeast and North and West, grain products ranked among the first two food groups in the proportion of total protein which they contributed. For the diets in the money-value class $2.08–$2.76 (table I), those in the Southeast show extensive dependency on the inferior proteins of grain products.

[2] Hazel K. Stiebeling and others, *Family Food Consumption and Dietary Levels, Five Regions*, Farm Series, U. S. Department of Agriculture, Miscellaneous Publication No. 405, 1941, and Hazel K. Stiebeling and Esther F. Phipard, *Diets of Families of Wage Earners and Clerical Workers in Cities*, U. S. Department of Agriculture, Circular 507, January 1939, are the most comprehensive surveys of dietary practices. These publications will be referred to subsequently by title only.

[3] The material for this section on rural families was taken from *Family Food Consumption and Dietary Levels, Five Regions*, Farm Series. The data are for some 12-month period in 1935–36 and some 7-day period during 1936 or 1937. The communities included and the type of farming practiced are given below:

Region, State, counties	*Type of farming* [6]
New England:	
Vermont—Franklin, Chittenden	Dairy.
Massachusetts—Bristol, Plymouth	Dairy, poultry.
Middle Atlantic and North Central:	
New Jersey — Camden, Gloucester, Salem	Truck.
Pennsylvania—Lancaster	General.
Ohio—Crawford, Knox, Richland	Do.
Michigan—Lewanee	General, dairy.
Wisconsin—Dane	Dairy.
Illinois—DeWitt, Logan, Macon, Piatt	Corn, other cash grain.
Iowa—Madison, Mahaska, Marion, Marshall, Poweshiek	Animal specialty.
Southeast:	
North Carolina—Jackson, Macon	Self-sufficing.
North Carolina—Edgecombe, Nash	Cotton, tobacco.
South Carolina—Clarendon, Darlington, Florence, Lee, Marion, Sumter	Cotton, tobacco.
Georgia—Clarke, Elbert, Greene, Jackson, Madison, Morgan, Oconee, Wilkes	Cotton.
Mississippi — Bolivar, Leflore, Sunflower, Washington	Do.
Plains and Mountain:	
North Dakota—Barnes, Cass, Griggs, Steels	Wheat, other cash grain.
Kansas—Edwards, Ford, Gray, Meade	Do.
South Dakota—Pennington	Range livestock and cash grain.
Montana—Custer	Do.
Colorado—Eagle, Garfield, Rio Blanco	Range livestock and crop specialty
Pacific:	
Washington—Whatcom	Dairy, poultry.
Oregon—Marion, Polk	General, fruit.
Oregon—Clackamas, Marion, Multnomah, Polk, Washington	Part-time.
California—Orange, Riverside, San Joaquin	Fruit and nut, fruit and dairy.

[6] For each group of counties as a whole, according to 1930 censns.

The farm families included in this study of consumption were limited to those in which there was a husband and wife, both native-born, and to white families in all regions except the Southeast, where a separate study of Negroes was made. Only those families were included that had not moved during the year covered by the study and that operated the farms they owned or rented, except in the Southeast, where special studies were also made of families of sharecroppers. None had received relief during the report year.

[4] Farm operator—A person responsible for the farm enterprise, either performing the labor himself or directly supervising it. Salaried farm managers and wage-earning farm laborers were excluded. Sharecroppers in the Southeast region have been distinguished from operators in all analyses as a separate occupational group.

[5] Food-expenditure unit.—The expenditure for the food of a moderately active adult, expressed as 1.0 was taken as a unit, and scales of numbers were devised to represent the relative expenditures for the food of individuals of other ages and activities.

Calcium and phosphorus are minerals which the body requires in relatively large quantities. They are constituents of bone and teeth. Phosphorus is also an essential constituent of all living cells and participates in many chemical reactions that control metabolism. In both regions compared in table I milk was the major source of calcium but in the Southeast grain products were also an important source of this mineral. Grain products also provided a larger proportion (40 percent) of the phosphorus in the diets of southeastern farm operators than in the diets of farm operators in the North and West (20 percent).

Iron is required for the formation of hemoglobin and it also functions as an activator of certain chemical processes in body tissues. For diets in the Southeast in the value of food class of table I, 41 percent of their iron content came from grain products. In the North and West no one of the major food groups contributed nearly as much of this element.

Vitamin A is needed for growth and reproduction and also for the maintenance of health and vigor at all ages. One of the early signs of a deficiency is night blindness. Changes in structure of epithelial tissues also occur which interfere seriously with normal functioning. Xerophthalmia, an eye disease, results from marked deficiency of the nutrient. According to table I, diets among farm operators in the Southeast showed a considerably smaller proportion of vitamin A derived from butter and other fats than was the case in the North and West. A significant source of vitamin A in the Southeast was sweetpotatoes.

Thiamin (vitamin B_1) plays a significant role in the metabolism of carbohydrates and, therefore, in the normal processes of all body cells. Growth of the organism, the maintenance of appetite, and the normal functioning of the gastrointestinal tract require it. Beriberi results from prolonged deficiency of vitamin B_1. According to table I, farm operators in the Southeast obtained 27 percent of the total amount consumed of this nutrient from grain products. This proportion was approximately twice that of the farm operators of the North and West for this source of the vitamin. Interestingly the farm operators of the North and West secured 22 percent of their vitamin B_1 from potatoes and sweetpotatoes as compared to 6 percent of the operators in the Southeast.

Ascorbic acid (vitamin C) was first known as a substance which was necessary for the prevention of scurvy. It is also closely related to the development and maintenance of the structure of teeth, bones, and various connective tissues in the body. In the Southeast farm operators with diets in the money-value class \$2.08–\$2.76 per food-expenditure unit per week secured 40 percent of their total ascorbic acid from leafy green and yellow vegetables whereas in the North and West 28 percent of the total came from other vegetables and fruits (except citrus) and 27 percent from potatoes and sweetpotatoes.

Riboflavin (vitamin G) promotes growth and general health and is essential to cell respiration. Among the characteristic symptoms that may develop in case of severe deficiency are lesions of the lips and ocular changes. There is less information concerning the minimum human requirements for riboflavin than for vitamin A, thiamin, or ascorbic acid. In both the Southeast and the North and West, milk or its equivalent supplied 60 and 50 percent, respectively, of this nutrient.

Grade of Diet[6] *in Relation to Money Value.*—In both the Southeast and the North and West the percentage of diets graded excellent increased markedly as money value of food per expenditure unit increased, while the percentage graded poor decreased (table II). In the Southeast the percentage having excellent diets was, with one exception, greater than in the North and West for all classes of money value of food per week per food-expenditure unit. However, the North and West region has no households in the money-value class 0.69–1.37 while the Southeast had 24 such households and 75 percent of these had poor diets.

Along with this association between money value of food and grade of diet should go the recognition that money value of food is not a direct determiner of grade of diet. In fact in several of the cost of food classes, there is considerable distribution (from excellent to poor) of households over the rating scale of diets.

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[6] In grading diets four classifications have been used—poor, fair, good, and excellent. To escape classification as poor, and to merit classification as fair, good, or excellent, a diet had to meet or exceed the following specifications per nutrition unit per day:

Nutrient	*Quantity per nutrition unit per day*
Protein	50 grams.
Calcium	0.45 gram.
Phosphorus	0.88 gram.
Iron	10 milligrams.
Vitamin A	3,000 international units.
Thiamin (vitamin B_1)	1.0 milligram or 333 international units.
Ascorbic acid (vitamin C)	30 milligrams or 600 international units.
Riboflavin	0.9 milligram.

A diet was classified as poor if it failed to meet the above specifications with respect to one or more nutrients; as fair, if it met or exceeded the quantities of each nutrient specified above, but by less than a 50-percent margin with respect to one or more nutrient; as good, if it provided at least a 50-percent margin beyond the specifications listed for each nutrient, but less than 100-percent margin in the case of the vitamins. A diet was classed as excellent if it provided per nutrition unit per day, the following nutrients in at least the quantities listed:

Nutrient	*Quantity per nutrition unit per day*
Protein	75 grams.
Calcium	0.68 gram.
Phosphorus	1.32 grams.
Iron	15 milligrams.
Vitamin A value	6,000 international units.
Thiamin (vitamin B_1)	2.0 milligrams or 666 international units.
Ascorbic acid (vitamin C)	60 milligrams or 1,200 international units.
Riboflavin	1.8 milligrams.

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TABLE II.—*Grade of diet by money value of food*

[Percentage of households having diets of specified grades, by money value of food per week per food-expenditure unit, 1936–37 [1]]

Money value[2] of food per week per food-expenditure unit (dollars)	Southeast					North and West [3]				
	Households	Households with diets graded—				Households	Households with diets graded—			
		Excellent	Good	Fair	Poor		Excellent	Good	Fair	Poor
	Number	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Number*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
0.69–1.37	24	0	0	25	75					
1.38–2.07	133	10	16	41	33	63	8	6	56	30
2.08–2.76	76	37	21	25	17	162	18	25	47	10
2.77–3.45	64	46	23	22	9	175	50	26	21	3
3.46–4.83	13	100	0	0	0	33	88	9	3	0

[1] *Family Food Consumption and Dietary Levels, Five Regions.* Farm Series, p. 85.
[2] Adjusted to June–August 1936 price level by U. S. Bureau of Labor Statistics index of retail food costs.
[3] New England, Middle Atlantic and North Central, Plains and Mountain, and Pacific regions.

Farm operators as a whole in the Southeast lag behind those of the North and West in grade of diets. Diets that did not provide enough of one or more nutrients to be classified in the fair grade were reported by about one-tenth of the families from whom food records were obtained in the North and West. Diets equally poor were reported by about one-fourth of the families of white operators in the Southeast. The North and West region had about one-third of its families furnishing food records whose diets could be classed as excellent while the Southeast had about one-fourth of its families in this class.

Of the food records from white operators in the Southeast that were graded poor, about half fell short of the specifications listed for a fair diet with respect to vitamin A and ascorbic acid (vitamin C), and about a fourth with respect to calcium. Only occasionally were thiamin (vitamin B_1) or riboflavin (vitamin G) the sole limiting factor. Of the diet records classed as fair from white farm operators' families of the Southeast, between a third and a half of those that failed to meet the specifications for a good diet were relatively deficient in ascorbic acid and vitamin A.

Grade of Diet in Relation to Family Type and Income.—The tabulation below gives for farm operators of the Southeast and North and West, by family types,[7] for the income class $500–$999, a comparison both of the money value of food per food-expenditure unit-meal and of the percentages of diets according to grade:

Analysis unit and family-type group	Average money value of food per food-expenditure unit-meal (cents)	Percentage of diets graded—	
		Poor or fair	Good or excellent
North and West:			
Type 1	14.0	37	63
Types 2 and 3	13.3	65	35
Types 4 and 5	13.6	50	50
Types 6 and 7	10.5	87	13
Southeast:			
Type 1	14.4	50	50
Types 2 and 3	12.5	41	59
Types 4 and 5	10.8	57	43
Types 6 and 7	9.4	69	31

In both the Southeast and the North and West there was a tendency for the smaller families (type 1) to have a larger proportion of diets graded good or excellent and a smaller proportion graded poor or fair than the very large families (types 6 and 7). This was in line with average money value of food per food-expenditure unit-meal for white operators in both regions.

As incomes rose, families of each type in general had an increasing proportion of diets graded excellent or good (see table III). The noteworthy exception to this general tendency occurred in both regions among families of types 4 and 5. This relationship between income and grade of diets would be expected because of the increasing quantities of milk, butter, succulent vegetables, and fresh fruit usually found in diets of higher money value which are associated with higher incomes. While the Southeast does not compare entirely unfavorably with the North and West, it should be noted that five of eight income groups in the region scattered

TABLE III.—*Grade of diet and money value of food by family type and income*

[Average money value of food per food-expenditure unit-meal and percentage of diets graded excellent or good and fair or poor, by family type and income, 2 regions, white farm operators in 20 States, 1936–37 [1]]

Family type and income class (dollars)	Southeast				North and West [2]			
	Households	Average money value of food per expenditure unit meal	Proportion of diets graded		Households	Average money value of food per expenditure unit meal	Proportion of diets graded	
			Excellent or good	Fair or poor			Excellent or good	Fair or poor
TYPE 1	*Number*	*Cents*	*Percent*	*Percent*	*Number*	*Cents*	*Percent*	*Percent*
500–999	19	14.4	50	50	49	14.0	63	37
1,000–1,499	10	17.9	80	20	31	15.8	71	29
TYPES 2 AND 3								
500–999	40	12.5	59	41	37	13.3	35	65
1,000–1,499	25	12.4	45	55	53	14.7	62	38
1,500–1,999	12	14.9	76	24	28	14.9	56	44
TYPES 4 AND 5								
500–999	67	10.8	43	57	49	13.6	50	50
1,000–1,499	51	12.0	33	67	52	14.1	68	32
1,500–1,999	22	11.4	31	69	47	13.2	44	56

[1] *Family Food Consumption and Dietary Levels, Five Regions.* Farm Series, p. 87.
[2] New England, Middle Atlantic and North Central, Plains and Mountain, and Pacific regions.

[7] The tabulation below indicates the general characteristics of the family types used, *Family Food Consumption and Dietary Levels, Five Regions,* Farm Series:

Family type	Persons other than husband and wife	Number of year-equivalent persons (including husband and wife)
1	None	2.
2	1 child under 16	3.
3	2 children under 16	4.
4	1 person 16 or older with or without 1 other person, regardless of age.	3 or 4.
5	1 person 16 or older; 1 child under 16; and 1 or 2 others, regardless of age.	5 or 6.
6	3 or 4 children under 16	5 or 6.
7	1 child under 16; and 4 or 5 others, regardless of age.	7 or 8.
8	3 or 4 persons 16 or older	5 or 6.
9	5 or 6 persons 16 or older; 7 or more persons, regardless of age (all combinations of 5 or more persons not included in type 7).	7 or more.

through each of the family types had smaller proportions of diets graded excellent or good than did similar income groups in the North and West.

Because a larger proportion of the farm operators' families in the North and West were in higher income classes than those in the Southeast, and because, as shown in the tabulation below, within each income class, families in the North and West (considered separately) had food of higher money value per food, expenditure unit-meal, there was a distinct difference in the nutritive quality of diets of farm operators' families included in the consumption sample in the North and West and those in the Southeast.

[Money value (in cents) of food per food expenditure unit-meal]

Family-income class	North	West	Southeast
$0–$499	14.1	13.5	10.8
$500–$999	13.7	13.3	11.3
$1,000–$1,499	14.8	13.9	12.1
$1,500–$1,999	13.9	14.0	13.0
$2,000–$2,999	14.3	14.9	14.0

Thus in general and for half of the income groups for which there were comparable data a larger proportion of the operator families in the North and West than in the Southeast, had diets that could be classed as excellent.

Rural Families: White Sharecroppers [8]

Money Value of Food.—With rising income, the average money value of food per food-expenditure unit-meal increased for both operators and sharecroppers; and in each income class the money value of the sharecroppers' food was usually lower than that of the farm operators. The following tabulation illustrates the point for families of types 4 and 5 combined in selected income classes:

Farm section, family income class, and tenure	Average money value of food per expenditure unit-meal (in cents)	Percentage of food that was home produced
North Carolina-South Carolina:		
$250–$499:		
Sharecroppers	5.3	53
Operators	5.9	60
$500–$749:		
Sharecroppers	7.0	59
Operators	8.2	69
Georgia-Mississippi:		
$250–$499:		
Sharecroppers	5.7	60
Operators	6.3	75
$500–$749:		
Sharecroppers	7.8	71
Operators	7.6	75

It is interesting to note that in each income class for both farm sections the percentage of food that was produced at home was greater for farm operators than for sharecroppers.

[8] Sharecropper—farmer in the Southeast who rented land on shares and was furnished work animals and, in some cases, equipment by the farm operator. The operator usually made the important decisions relating to the operation of the farm and supervised operations. The sharecropper was thus a type of laborer who was paid wages in kind on the basis of what he produced, his share usually being half the crop or less.

Dietary Patterns as Shown by 7-Day Schedules.—The nature of the diets of families of sharecroppers as contrasted with those of operators may be seen from figures on average consumption in a week during the season March–November 1936 for two farm sections of the Southeast combined. The tabulation below is for families of types 4 and 5, in the income class $500–$999:

Classes and groups of food	Pounds consumed per household in week	
	Sharecroppers	Operators
Class A (groups include many of the protective foods)	81.4	91.4
Eggs	2.0	2.4
Milk, fluid, or its equivalent in other forms	51.6	58.3
Butter	2.4	2.6
Succulent vegetables, fresh and canned	14.6	13.9
Fruit, fresh [1] and canned	10.8	14.2
Class B (other foods of plant origin)	49.2	47.0
Grain products (flour equivalent)	33.9	31.5
Sugar, sirups, preserves	7.0	7.8
Potatoes, sweetpotatoes	7.7	7.2
Dry mature beans, peas	.6	.5
Class C (other foods chiefly of animal origin)	13.7	12.3
Fats, oils [2]	6.8	5.8
Meat,[3] poultry, fish	6.9	6.5

[1] Includes also the fresh fruit equivalent of dried fruit.
[2] Excludes butter, but includes bacon and salt side.
[3] Excludes bacon and salt side.

The food supply of sharecroppers' families included smaller quantities of the relatively expensive protective foods than that of operators. The households fed from the food supplies listed had an average of 4.76 persons among the sharecroppers and 4.57 among operators while the value of the food per food-expenditure unit-meal was 8.1 cents and 8.6 cents, respectively. A significant difference between sharecroppers and operators is in the amount of milk (fluid or its equivalent in other forms) consumed per household in a week. Since the sharecropper families were larger than the operator families, their per person consumption was even less than the household figure would indicate.

Nutritive Value of Diets.—Classified by level of money value of food, there were no consistent differences in nutritive value between diets of sharecropper and operator families. Of food energy and some nutrients (protein, phosphorus, iron, and vitamin A) the diets of sharecroppers furnished slightly larger average quantities, but of ascorbic acid slightly smaller quantities. The direction of differences at three comparable levels of income (see table IV) for other nutrients was not consistent.

Some of the diets in the class of food supplies valued $0.69 to $1.37 per food-expenditure unit per week—nearly 25 percent of the families of sharecroppers were in this class—were very restricted. Thus the average ascorbic acid content of raw food was only 38 milli-

TABLE IV.—*Nutritive value of diets by money value of food*

[Average nutritive value of diets per nutrition unit per day, by money value of food per week per food-expenditure unit, Southeast white operator and white sharecropper analysis units, 1936–37 [1]]

Money value [2] of food per week per food-expenditure unit and analysis unit	Number of households	Average nutritive value per nutrition unit per day								
		Food energy	Protein	Calcium	Phosphorus	Iron	Vitamin A value	Thiamin	Ascorbic acid	Riboflavin
		Calories	*Grams*	*Grams*	*Grams*	*Milligrams*	*International units*	*Milligrams*	*Milligrams*	*Milligrams*
$0.69–$1.37:										
Operators	24	2,920	66	0.58	1.66	14.9	7,000	1.56	42	1.14
Sharecroppers	18	3,100	69	.66	1.73	16.3	10,300	1.53	38	1.23
$1.38–$2.07:										
Operators	133	3,730	90	.96	2.14	19.5	9,600	2.10	55	2.04
Sharecroppers	39	4,010	92	.78	2.19	20.8	11,700	2.13	50	1.74
$2.08–2.76:										
Operators	150	4,520	112	1.22	2.56	22.6	12,000	2.73	70	2.82
Sharecroppers	29	4,770	115	1.17	2.67	24.5	13,300	3.12	62	2.64

[1] *Family Food Consumption and Dietary Levels, Five Regions*, Farm Series, p. 95.
[2] Adjusted to June–August 1936 level by the U. S. Bureau of Labor Statistics index of retail food costs.

grams per nutrition unit per day, a level which is further reduced by cooking. The average quantity of riboflavin, 1.2 milligrams, was also low. The calcium content of these diets, which averaged only .66 gram per unit, was higher than could be expected in view of the low milk consumption, but consumption of self-rising flour may have made up for some of the deficiency due to the absence of milk from the diets.

Diets valued between $1.38 and $2.07 per food-expenditure unit per week furnished somewhat larger average quantities of each nutrient considered. Only in ascorbic acid and riboflavin were the average values per nutrition unit below a fairly liberal standard. However, not every family with food valued in this range obtained the proper quantities of all other nutrients. Thus, about one-fifth of the families consumed less than 1.5 milligrams (500 International Units) of thiamin, and the same proportion, less than 4,500 International Units, of vitamin A per nutrition unit per day.

At the level of money value of food, $2.08–$2.76 per food-expenditure unit per week, the average values for each of the nutrients were all above standard dietary allowances.

Grade of Diets.—At comparable levels of money value of food per food-expenditure unit, the diets of white sharecroppers' families in the Southeast were less satisfactory with respect to the percentage of diets graded excellent or good and fair or poor than diets of farm-operator families. This is illustrated by the following tabulation:

Money value of food per week per food-expenditnre unit and tenure	Percentage of diets graded	
	Excellent or good	Fair or poor
$1.38–$2.07:		
Sharecroppers	21	79
Operators	26	74
$2.08–$2.76:		
Sharecroppers	45	55
Operators	58	42

At each level of money-value of food, the diets of sharecroppers included less of the protective foods than did those of operators.

For all family types combined, the difference in grade of diets among families of the two tenure groups is presented below for selected income levels:

Family-income class and tenure	Percentage of diets graded	
	Excellent good	Fair or poor
Under $500:		
Sharecroppers	25	75
Operators	31	69
$500–$999:		
Sharecroppers	41	59
Operators	45	55

A larger proportion of sharecroppers than operators fell within lower income groups; sharecropper families in general were larger; their production of food for home use was less adequate; and their diets generally had less of the protective foods.

Rural Families: Negro Farm Families

Money Value of Food of Negro Farm Operators' and Sharecroppers' Families.—As incomes rose, there was an increase in money value of food per food-expenditure unit-meal for both tenure groups among Negro families. However, within the same income class operator families usually had food of higher money value, than sharecropper families. For families of types 4 and 5 combined, the average money value of food per expenditure unit-meal is presented in the following tabulation:

Family-income class and farm section	Average value (in cents) of food per food-expenditure unit-meal	
	Operators	Sharecroppers
$250–$499:		
North Carolina-South Carolina	5.1	4.4
Georgia-Mississippi	5.5	4.6
$500–$749:		
North Carolina-South Carolina	6.4	6.4
Georgia-Mississippi	7.2	6.4

Dietary Pattern of Negro Farm Families.—Negro farm families in the lower income classes had rather restricted diets. Even for the income class, $500–$999 (almost half of the Negro families included in the study had incomes under $500), the amounts of major food groups consumed during a week sometime within the period March–November 1936 by families of types 4 and 5 combined were as follows:

Classes and groups of food	Pound consumed per household in a week
Class A (groups including many of the protective foods)	56.0
Eggs	1.5
Milk, fluid or its equivalent in other forms	31.0
Butter	1.4
Succulent vegetables, fresh and canned	12.1
Fruit, fresh [1] and canned	10.0
Class B (other foods of plant origin)	43.6
Grain products (flour equivalent)	30.2
Sugar, sirups, preserves	7.0
Potatoes, sweet potatoes	5.7
Dry mature beans, peas	.7
Class C (other foods chiefly of animal origin)	13.8
Fats, oils [2]	7.0
Meats, [3] poultry, fish	6.8

[1] Includes also the fresh equivalent of dried fruit.
[2] Excludes butter, but includes bacon and salt side.
[3] Excludes bacon and salt side.

These amounts of eggs and milk are a third less than those usually recommended for low-cost adequate diets. The average for milk is definitely lower than that of white farm families of the same family type and income class in the Southeast.

Relatively few of the Negro families (operators and sharecroppers) were in the income class of $1,500 or over. In successive income groups up to this class, there were generally noticeable increases in the consumption of eggs, fluid milk (or its equivalent in other forms), of meat, poultry, and fish, and of potatoes; and relatively smaller increases in the consumption of vegetables other than potatoes.

Nutritive Value as Related to Money Value of Food for Negro Farm Families.—The average nutritive values per nutrition unit per day for the basic nutrients consumed by Negro farm families classified by money value of food and tenure are presented in table V. Diets which fell within the range $0.69–$1.37 per week per food-expenditure unit (a large proportion of the Negro families studied had food valued in this class) provided an average of approximately 3,000 calories per nutrition unit per day. But 25 percent of the Negro operators and 14 percent of the sharecroppers consumed fewer than 2,400 calories per nutrition unit. At this low level of money value of food, grain products furnished about half of the total calories (operators and sharecroppers). Fats furnished 23 percent and milk, meat, potatoes, and sugar from 5 to 7 percent each.

The average protein content of diets in the $0.69–$1.37 money-value class of food per day per food-expenditure unit was 65 grams per nutrition unit per day for operators and 66 for sharecroppers. While these figures are well above a level considered as average minimum requirements, a few families of both operators and sharecroppers received below minimum amounts of protein per unit per day. Over half of the protein was from grain products and only about one-third from animal products such as meat, eggs, and milk.

Calcium was one of the most common deficiencies found in the diets of Negroes at the $0.69–$1.37 level of money value of food because of low milk consumption, which averaged for operators and sharecroppers about 4 pints per week, or slightly over 1 cup per day per person.

The averages for phosphorus and iron indicate a more plentiful supply of these nutrients relative to body need than was found for calcium. Only a few families were consuming average quantities of these minerals which might be considered substandard.

The average vitamin A content of the diets valued from $0.69–$1.37 per food-expenditure per week was estimated to be 8,100 International Units per nutrition unit per day for operators and 9,500 for sharecroppers.

TABLE V.—*Nutritive value of diets, by money value of food*

[Average nutritive value of diets per day, by money value of food per week per food-expenditure unit, Southeast Negro operator and Negro sharecropper analysis units: 1936–37 [1]]

Money value [2] of food per week per food-expenditure unit and analysis unit	Number of households	Average nutritive value per nutrition unit per day								
		Food energy	Protein	Calcium	Phosphorus	Iron	Vitamin A value	Thiamin	Ascorbic acid	Riboflavin
		Calories	*Grams*	*Grams*	*Grams*	*Milligrams*	*International units*	*Milligrams*	*Milligrams*	*Milligrams*
$0.69–$1.37:										
Operators	36	2,900	65	0.56	1.57	16.3	8,100	1.74	38	1.14
Sharecroppers	73	3,030	66	.60	1.67	15.8	9,500	1.71	35	1.23
$1.38–$2.07:										
Operators	38	4,430	96	.85	2.21	22.9	13,900	2.22	50	1.92
Sharecroppers	51	4,020	92	.87	2.18	23.7	16,000	2.28	55	1.89
$2.08–$2.76:										
Operators	14	5,070	130	1.78	3.29	26.6	15,100	2.76	60	3.42
Sharecroppers	20	4,780	119	1.27	2.76	25.0	16,200	3.03	68	2.73

[1] *Family Food Consumption and Dietary Levels, Five Regions*, Farm Series, p. 101.
[2] Adjusted to June–August 1936 level by the U. S. Bureau of Labor Statistics index of retail food costs.

However, there was a wide range in the distribution of families for this particular nutrient, so that, while many families were well supplied, others were deficient. The two important sources of vitamin A in these diets of low money value were sweetpotatoes which, together with potatoes, supplied about 52 percent, and leafy, green, and yellow vegetables, which provided 31 percent of the total.

The dietary quantity of thiamin averaged 1.7 milligrams per nutrition unit per day for both operators and sharecroppers when food was valued in the range $0.69–$1.37 per week per food-expenditure unit. Of the operators 14 percent and of the sharecroppers 24 percent received less than 1 milligram per nutrition unit per day, a level that is considered substandard. In these diets 39 percent of the total thiamin was from grain products, while meat, chiefly pork, was the next best source.

At the above low level of money value of food, operator families had on the average 38 milligrams of ascorbic acid per nutrition unit per day while sharecropper families had 35 milligrams. With this somewhat low average there were necessarily many cases of actual or borderline deficiency of ascorbic acid among Negro families in the $0.69–$1.37 money-value-of-food class.

The average riboflavin content of diets in the $0.69–$1.37 money value class was 1.1 milligrams per nutrition unit per day for operator families and 1.2 for sharecropper families. These amounts fall somewhat short of the quantities necessary for ranking a diet as excellent.

When food supplies were more liberal and higher in money value, the chances of having good diets increased. About one-third of the families of both operators and sharecroppers consumed food valued in the range $1.38–$2.07 per week per food-expenditure unit. At this level of money value the average values of nutrients were higher than those found at the level previously discussed. Moreover, generous quantities of each nutrient were found in the diets of a large proportion of the families. Riboflavin and ascorbic acid were the nutrients most likely to be inadequately furnished by diets in the class $1.38–$2.07 per week per unit.

Grade of Diets of Negro Farm Families.—About one-half of the Negro farm families had diets that failed in one or more respects to meet the specifications of fair diets. The proportion classed as poor decreased as the money value of food increased. Almost half of the diets graded as poor failed to meet the requirements for a fair diet with respect to calcium and ascorbic acid; about a third, vitamin A and riboflavin, and nearly a fifth, protein and thiamin. When only one nutrient was the limiting factor in determining the classification of a diet as poor, it was most likely to be calcium or vitamin C. Of diets classed as fair, about a half and a third failed to meet the specifications for a good diet with respect to ascorbic acid and calcium, respectively. If one nutrient was the limiting factor, it was most likely to be ascorbic acid. As the size of family in a given income class increased, the proportion of diets considered excellent or good decreased. For families of a given size, the proportion having excellent or good diets increased as income rose.

Urban Families: Wage Earners and Clerical Workers.[9]

Consumption of Food by Major Food Groups.—A comparison of dietary sources of white wage earners and clerical workers of cities in the East South Central States, with those in cities of the North Atlantic, East North Central, and Pacific States and with Negro wage earners and clerical workers in several cities of the South is presented here. The average consumption in the East South Central States per urban white person per year for all food expenditure groups with cases for comparison, compares in general either favorably or more than favorably with the average in other regions for eggs, vegetables, milk, fruits,[10] and grain products. Meat, poultry and fish, and butter consumption in these States was below that of the other regions. These food groups are sources of important nutrients and represent significant deficiencies. In comparing whites in East South Central cities and Negroes in Southern cities, the Negro group in general compares very favorably with the whites for all expenditure classes in butter and vegetables, but unfavorably in consumption of milk and eggs, and somewhat unfavorably in consumption of fruits. The Negro group consumed per person notably more meats, poultry, and fish; and with the exception of one expenditure class considerably more

[9] The material for this section was taken from *Diets of Families of Employed Wage Earners and Clerical Workers in Cities.* The study was based on about 4,000 records of a week's food consumption, placed at the disposal of the Bureau of Home Economics through the courtesy of the Cost of Living Division of the United States Bureau of Labor Statistics. The records were collected in 1934–1937 as part of a study of income and disbursements for family living.

Food records were obtained from white families in the following cities, by region:
New England: Berlin, Claremont, Concord, Dover, Keene, Littleton, Manchester, Nashua, and Portsmouth, N. H.; Boston and Springfield, Mass.
Middle Atlantic: New York and Rochester, N. Y.; Lancaster, Philadelphia, and Pittsburgh, Pa.
East North Central: Indianapolis, Ind.; Detroit, Grand Rapids, Lansing, and Marquette, Mich.; Cincinnati and Columbus, Ohio; Milwaukee, Wis.
West North Central: Minneapolis and St. Paul, Minn.; St. Louis, Mo.
South Atlantic: Jacksonville, Fla.; Norfolk and Richmond, Va.
East South Central: Birmingham and Mobile, Ala.; Memphis, Tenn.
West South Central: Dallas and Houston, Tex.
Mountain: Reno, Nev.; Salt Lake City, Utah.
Pacific: Los Angeles, Oakland, Sacramento, and San Francisco, Calif.; Seattle, Wash.

Records were obtained from Negro families in the following cities, by region:
Middle Atlantic: New York, N. Y.; Philadelphia and Pittsburgh, Pa.
South: Richmond, Va.; Birmingham and Mobile, Ala.; Memphis, Tenn.; New Orleans, La.

[10] Distinctly below Pacific cities in consumption of fruits but above North Atlantic and East North Central cities.

grain products. The sample of whites analyzed from East South Central cities contained no families whose weekly per capita food expenditure exceeded $3.12, while the samples from the other regions had families in expenditure classes above this level. On the other hand the samples from cities in the other regions had no families with weekly per capita food expenditure in the range $0.63–$1.24, while the sample from the East South Central region had families in this category. The Negro sample analyzed from Southern cities included families in the $0.63–$1.24 expenditure class but none in any class above $3.12.

Nutritive Value of Foods Used.—White wage earners and clerical workers of East South Central cities, for all food-expenditure classes for which there are data, in their consumption per requirement unit per day, compare more than favorably with those from North Atlantic, East North Central, and Pacific cities for the energy value of food, calcium content, iron content and vitamin A value. In vitamin B, riboflavin (vitamin G), pellagra-preventive nutrients, and protein, the urban wage earners and clerical workers in the East South Central tend to equal or excel those in other regions. When Southern urban whites and Negroes are compared, the diets of the Negro group in general surpassed the whites in energy value, in protein, in iron, in vitamin A value, in vitamin B value, and pellagra-preventive value; in calcium and riboflavin content of diet there were no significant differences between whites and Negroes. It should be noted that the white sample from the East South Central cities had families in the weekly per capita food expenditure class, $0.63–$1. 24, while in the other regions there were no families in this class. On the other hand the samples from the other regions had families in the expenditure class above $3.12 but there were no families in this category in the East South Central sample. The Negro sample analyzed from Southern cities included families in the $0.63–$1.24 expenditure class, but none in any class above $3.12.

Grade of Diets.[11]—Table VI gives the distribution of diets by grade at two levels of food expenditure for wage earners and clerical workers in cities of the East North Central, the West North Central, the South Atlantic, and the East South Central States. Urban families with food expenditures of $1.25–$1.87 a person a week in East South Central States had a smaller percent of diets classed as poor than either of the other three regions. Indeed 33 percent of its families had diets classed as fair. No region had any significant percent of its families in the food expenditure class $1.25–$1.87 with diets which did not need improvement. In this class of expenditure for food southern Negroes do not compare unfavorably with southern whites or for that matter with whites in the other two regions.

For urban white families in the per capita food expenditure class $2.50–$3.12 the East South Central cities had the best record and even the South Atlantic cities may be considered to have a better record than cities in the two Northern Regions. Southern urban Negroes seemed to procure better diets at this level than did urban whites of the East North Central and West North Central States.

At the per capita expenditure level of $3.75–$4.37 of the regions considered in table VI only the East North Central States are represented (not shown in the table). The sample of southern whites and Negroes had only a few cases at this level.

TABLE VI.—*Distribution of food records of families of wage earners, and clerical workers in cities, according to grade of diet, level of expenditure, and region.*[1]

Weekly per capita expenditure for color of family and region	Records	Proportions graded		
		Good	Fair	Poor
	Number	*Percent*	*Percent*	*Percent*
$1.25–$1.87:				
White:				
East North Central	70	3	10	87
West North Central	16	0	6	94
South Atlantic	20	0	10	90
East South Central	114	1	33	66
Negro: South	83	5	37	58
$2.50–$3.12:				
White:				
East North Central	129	7	29	64
West North Central	37	8	24	68
South Atlantic	34	6	53	41
East South Central	54	35	32	33
Negro: South	18	28	28	44

[1] Hazel K. Stiebeling and Esther F. Phipard, *Diets of Families of Employed Wage Earners and Clerical Workers in Cities*, Circular 507, United States Department of Agriculture, January 1939, p. 74.

Summary of Nutrition Situation

Good diet is dependent largely on income available for purchasing food. This fact is outstanding, whether the region is the Southeast or some other section; whether farm operators or sharecroppers are under consideration, whether Negro or white, whether urban or rural dweller. However, many families at all levels of income could improve their dietary practices within the limits of their present income. In such cases a

[11] Diets were assigned to the highest class, good, if the uncooked food material furnished per nutrition requirement unit at least the following quantities of each nutrient: 67 gm of protein, 0.68 gm. of calcium, 1.32 gm. of phosphorus, 15 mg. of iron, 6,000 International Units of vitamin A, 500 International Units of vitamin B, 75 mg. of ascorbic acid, and 600 Sherman units of riboflavin. These quantities allow about a 50 percent leeway above what are believed to be average minimum requirements for protein and minerals, and a generous margin above probable minimum need for each vitamin, although perhaps not equally generous for each.

A diet was classed as in need of improvement, poor, if per nutrition requirement unit the raw foods provided less than the following quantities of any one nutrient: 45 gm. of protein, 0.45 gm. of calcium, 0.88 gm. of phosphorus, 10 mg. of iron, 3,000 International Units of vitamin A, 250 International Units of vitamin B, 37 mg. of ascorbic acid, or 300 Sherman units of riboflavin.

Diets that were better in every respect than the specifications for poor diets, but poorer in one or more nutrients than the specifications for good diets were classed as fair.

program of nutrition education is indicated, but even with the improvement that might thus result, income would still remain a very significant factor.

The Southeast differs markedly from other sections of the Nation in the extent to which grain, especially corn, is the source of basic nutrients, chiefly because of its cheapness. At least half the protein eaten should come from milk, eggs, and lean meat. When most of it comes from cereals, diets lack the complete proteins necessary for growth, vitality, and good health. Farm operators as a whole in the Southeast have poorer diets than do those in the North and West. Nutrients frequently absent from farm operators' diets in the Southeast are certain of the basic vitamins, i. e., vitamins A, C, B, and G. Lack of these vitamins, occurring day after day, has been described as "hidden hunger," which is manifest in chronic fatigue, slow thinking, nervous disorders, and digestive disturbances and has been described by well-fed Southerners as "general triflingness." A basic explanation for the disparity in grade of diet between farm operators of the North and West and those in the Southeast is the larger proportion of the former group which have higher income. At comparable levels of income, sharecroppers have less satisfactory diets than do farm operators, which may be partially explained by the more extensive home production of food by the operators. About one-half of the Negro farm families of the Southeast have poor diets.

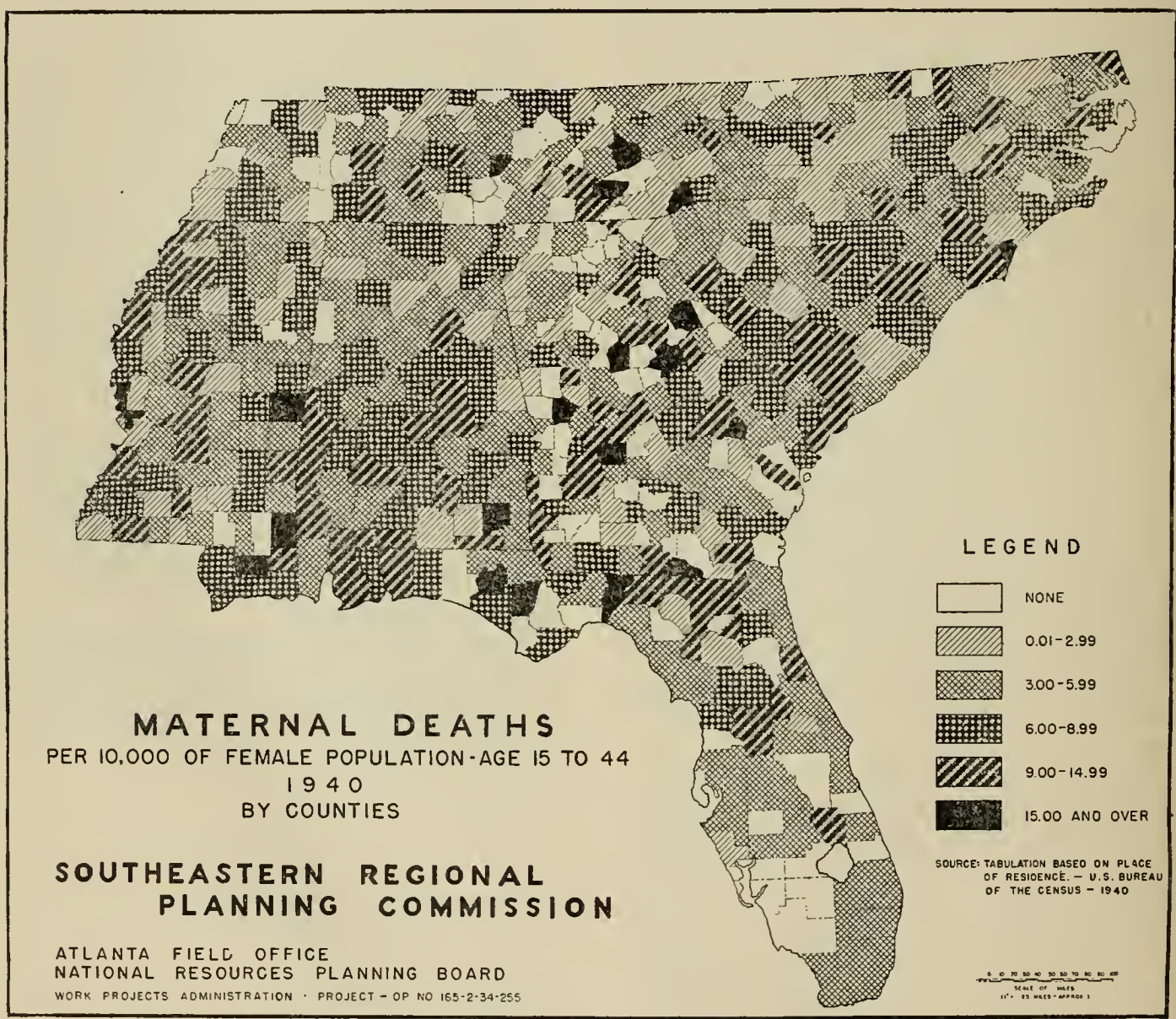

Figure 31

Considering farm operators, sharecroppers, and Negroes combined, the rural Southeast ranks below the North and West in nutritional practices. Urban families of wage earners and clerical workers of the same income level, whether white or Negro, do not compare unfavorably—indeed even surpass those of certain other sections of the Nation. However, there is such a large proportion of low income families in the urban population of the region that, considered as a whole, urban dietary practices are generally below those of urban families in other parts of the country.

Death Rates as Indices of Health Problems [12]

Maternal and Infant Deaths

The state of maternal and child health in the Southeast represents an opportunity for substantial improvement as compared to the national situation. In 1939 there were 385,528 live births in the Southeastern States. Maternal mortality for the same year was 2,165 and infant mortality 22,575. The maternal death rate was 56.16 per 10,000 live births compared to 40.39 for the Nation. Obviously there is in the region a serious neglect of mothers in connection with childbirth. Most unusual is the high rate of 65.27 in Florida. North Carolina had the lowest rate, 47.25. The following tabulation gives the maternal death rates per 10,000 live births for the seven States and the United States:

United States	40. 39
Region	56. 16
Alabama	58. 81
Florida	65. 27
Georgia	55. 88
Mississippi	59. 36
North Carolina	47. 25
South Carolina	59. 10
Tennessee	55 67

The region's infant death rate per 1,000 live births in 1939 was 58.6 compared to 48.0 for the Nation. The tabulation below gives the infant death rates per 1,000 live births for each State in 1939:

Alabama	59. 9
Florida	56. 4
Georgia	58. 4
Mississippi	56. 2
North Carolina	59. 2
South Carolina	66. 2
Tennessee	53. 9

The rate for South Carolina is exceptionally high while Tennessee has the lowest rate. Between 1938 and 1939 the infant death rate per 1,000 births declined in every State of the region; for Georgia, North Carolina, South Carolina, and Tennessee, the decline in rates was fairly large.

In 1940 the maternal death rate per 10,000 females 15 to 44 years of age in the Southeast was 5.15 compared to 2.77 for the nation (table VII). According to table VIII, in 1940, 92 counties in the region, or 14.9 percent of the total number of counties, had no maternal deaths per 10,000 of the female population 15 to 44 years of age. On the other hand there were 241 counties, or 39.1 percent of the total number, which had rates of 6.00 or more per 10,000. Since the rate for the region was only 5.15 and for the nation much less, only 2.77, rates of 6.00 or more per 10,000 represent a serious situation with respect to maternal care. Every State had a large number of counties with rates of 6.00 or more per 10,000. In South Carolina 58.7 percent of its counties were in this category. Indeed, in the region as a whole there were 22 counties with 15.00 or more maternal deaths per 10,000 of the female population, age 15 to 44. (See also fig. 31.)

TABLE VII.—*Number of deaths per 10,000 of population from certain specific causes: 1940*

Cause of death	United States	Region	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Tennessee
Tuberculosis (all forms)	4.99	5.35	5.31	5.11	5.00	5.00	4.50	4.80	7.58
Malaria	.11	.45	.72	.52	.34	.80	.17	.62	.22
Influenza and pneumonia (all forms)	7.03	9.00	9.37	8.17	9.18	8.73	7.45	10.22	10.32
Pellagra	.16	.65	.87	.37	.81	.77	.55	.84	.35
Syphilis (all forms)	1.44	1.85	1.99	2.65	2.08	2.19	1.24	1.98	1.39
NUMBER PER 10,000 FEMALES 15 TO 44 YEARS OF AGE									
Maternal deaths (all forms)	2.77	5.15	6.05	4.54	4.64	6.16	5.33	6.49	3.51

[12] The sources of the data for this section, unless otherwise indicated, are *Vital Statistics of the United States* for 1939 and 1940 and special tabulations of vital statistics for 1940 furnished by the United States Bureau of Census.

Theoretically, the existence of health problems should be more adequately ascertained from morbidity data than from mortality figures. However, morbidity reporting is so inadequate that the use of such data is exceedingly questionable, especially for comparative purposes over a wide area. For this reason, only mortality rates are used in this discussion.

The mortality data for 1940 are allocated to place of residence, but the 1939 data on births and deaths are for place of occurrence. Death rates based on average number of deaths for a period of years (i. e., three to five) are generally considered more reliable than those based on figures for one year only. However, since county data for deaths by cause and place of residence were not readily available for a period of years, most of the rates presented are for only one year.

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Deaths From Tuberculosis

Dr. E. L. Bishop, Director of Health, Tennessee Valley Authority, writes:

Studies of the regional distribution of tuberculosis deaths yield evidence of the apparent importance of regional factors which we may perhaps have neglected in past efforts at control. For example, Dearing says, "When white and colored rates are

studied separately, North and South Carolina, Georgia, and the Gulf States seem to have low rates for both whites and Negroes as compared with these racial groups for the rest of the country. Kentucky and Tennessee have very high rates for whites and relatively high rates for the colored population. The white death rate in Kentucky and Tennessee is exceeded only by that in the three resort States—Colorado, Arizona, New Mexico. This high rate extends to some extent on into Virginia and Maryland. North of this area the rates are generally lower. If we approach the Tennessee Valley from any direction, the death rate rises." In Alabama, for example, as Dearing points out, the annual rates per 100,000 for the five years 1929–33 were 29.6 for the Southern Zone, 42.6 for the Central Zone, 62.2 for the Northern Zone. Passing on into Tennessee the rate for the border counties adjoining Alabama during the same period was 81.1.[13]

[13] Bishop, E. L., "Some Health Problems of the South" (an unpublished address), June 1940, pp. 8–9.

In 1940 the death rate from tuberculosis per 10,000 of the population in the seven Southeastern States was 5.35 compared with a rate 4.99 for the Nation (table VII). Tennessee and Alabama, States containing major portions of the Tennessee Valley, had the highest rates, 7.58 and 5.31, respectively.

There are 110 counties, or 17.8 percent of the counties in the region, which had in 1940, 7.00 or more tuberculosis deaths per 10,000 (table IX). Every State in the region had three or more of these counties. South Carolina had the smallest number (3) and Tennessee the largest (51). Since the average rate for the entire Southeast in 1940 was 5.35 per 10,000, these counties with 7.00 or more deaths per 10,000 must be considered problem situations (Fig. 32). In view of the national

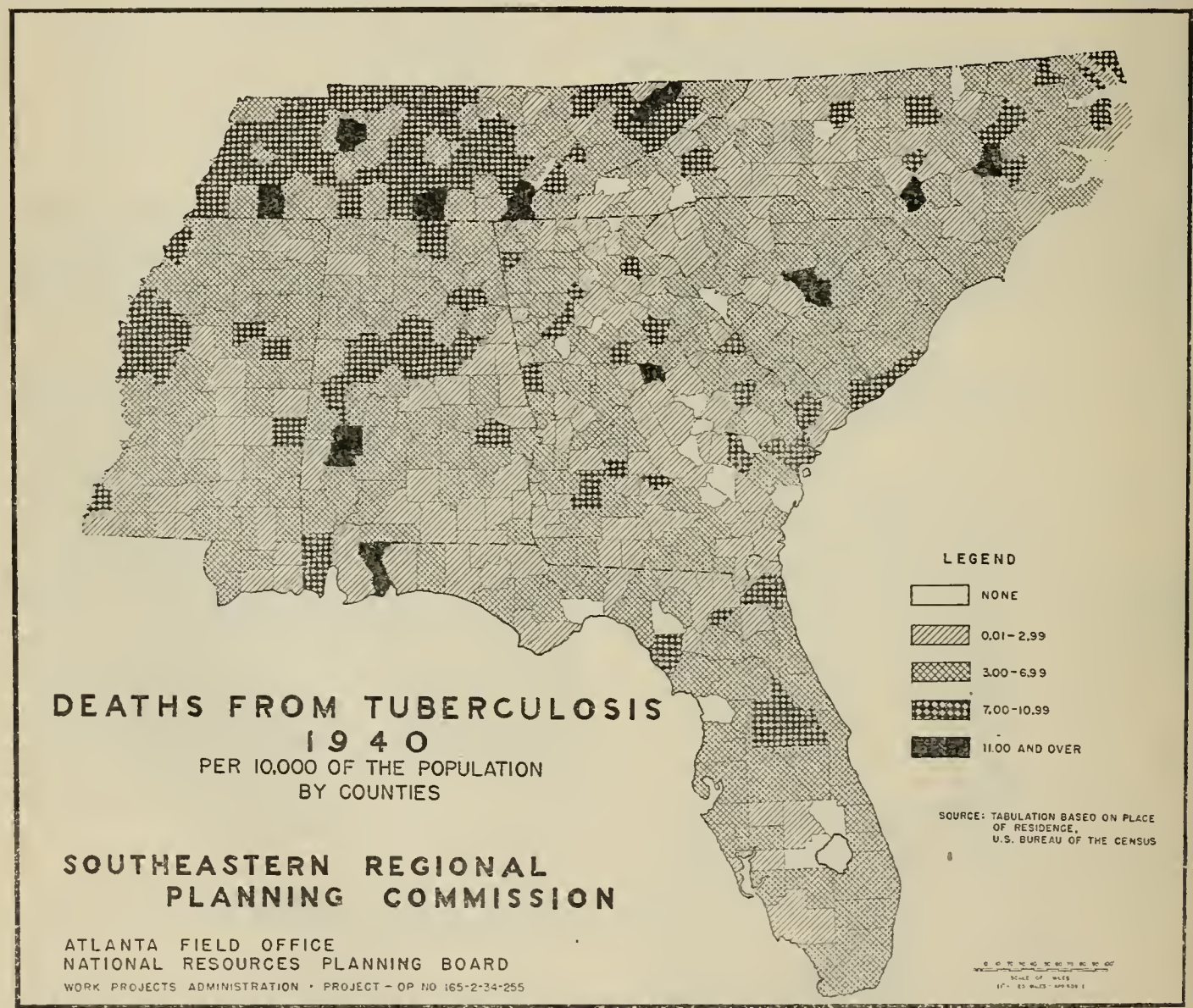

Figure 32

TABLE VIII.—*Distribution of counties according to number of maternal deaths per 10,000 of female population 15 to 44 years of age: 1940*

Area	Number of counties according to number of maternal deaths per 10,000 of female population 15–44 years of age					
	0.00	0.01–2.99	3.00–5.99	6.00–8.99	9.00–14.99	15.00 and over
Region	92	83	200	128	91	22
Alabama	0	8	26	20	12	1
Florida	18	4	22	8	12	3
Georgia	41	14	49	24	23	8
Mississippi	3	13	25	24	13	4
North Carolina	8	23	33	18	14	4
South Carolina	0	6	13	16	11	0
Tennessee	22	15	32	18	6	2
	Percentage distribution of counties					
Region	14.9	13.5	32.5	20.8	14.8	3.5
Alabama	0	11.9	38.8	29.9	17.9	1.5
Florida	25.9	6.0	32.8	11.9	17.9	4.5
Georgia	25.8	8.8	30.8	15.1	14.5	5.0
Mississippi	3.7	15.8	30.5	29.3	15.8	4.9
North Carolina	8.0	23.0	33.0	18.0	14.0	4.0
South Carolina	0	13.0	28.3	34.8	23.9	0
Tennessee	23.2	15.8	33.7	18.9	6.3	2.1

rate of 4.99 per 10,000 (1940) undoubtedly a number of counties in the class of 3.00–6.99 are also places in which tuberculosis is a serious problem.

Deaths from Malaria

The National Resources Committee in 1938 pointed out the intensification of the national malaria problem in the South.[14] Dr. Bishop writes:

> In our own studies, which it must be admitted are based to some extent upon arbitrary assumptions, we find evidence that the cost of a single infection is not less than $40. Even upon such a conservative basis, the cost of this one disease to the South in terms of out-of-pocket expenditures, earning capacity, and physical efficiency runs into millions annually, for more than 90 percent of the National incidence of five or six million cases, occurring annually, is limited to the South.[15]

The death rate per 10,000 from malaria in 1940 was .45 for the Southeast as compared to .11 for the Nation (table VII). Mississippi, Alabama, and South Carolina had relatively high rates, .80, .72, and .62.

In 1940, 54.1 percent of the counties in the Southeast had no deaths from malaria (table X). On the other hand there were 39 counties, or 6.3 percent of the total number, in which deaths from malaria were 2.00 or more per 10,000. These counties should be considered serious situations since the average rate per 10,000 for the region was only .45. Every State, except Tennessee, had one or more counties in this class. Alabama had the largest number (11) and North Carolina had the smallest (1) (Fig. 33). When compared to the National figure of .11 per 10,000 (1940) a number of the region's counties in the class, 0.01 to 1.99 may also be considered problem areas. It should be remembered that the preceding analysis has dealt with mortality data.

[14] *The Problems of a Changing Population*, May 1938, p. 184.
[15] Bishop, *op. cit.*, pp. 10–11.

TABLE IX.—*Distribution of counties according to number of deaths from tuberculosis per 10,000 of the population: 1940*

Area	Number of counties according to number of deaths from tuberculosis per 10,000 of 1940 population				
	0.00	0.01–2.99	3.00–6.99	7.00–10.99	11.00 and over
Region	20	161	325	97	13
Alabama	-------	18	39	9	1
Florida	5	19	37	6	1
Georgia	11	58	73	16	1
Mississippi	-------	20	51	10	1
North Carolina	3	33	52	10	2
South Carolina	-------	8	35	2	1
Tennessee	1	5	38	45	6
	Percentage distribution of counties				
Region	3.3	26.1	52.8	15.7	2.1
Alabama	-------	26.9	58.2	13.4	1.5
Florida	7.5	28.3	55.2	7.5	1.5
Georgia	6.9	36.5	45.9	10.1	.6
Mississippi	-------	24.4	62.2	12.2	1.2
North Carolina	3.0	33.0	52.0	10.0	2.0
South Carolina	-------	17.4	76.1	4.3	2.2
Tennessee	1.1	5.3	40.0	47.4	6.3

TABLE X.—*Distribution of counties according to number of deaths from malaria per 10,000 of the population: 1940*

Area	Number of counties according to number of deaths from malaria per 10,000 of 1940 population			
	0.0	0.01–1.99	2.00–3.99	4.00–5.99
Region	333	244	32	7
Alabama	19	37	8	3
Florida	30	29	5	3
Georgia	99	53	6	1
Mississippi	21	54	7	-------
North Carolina	73	26	1	-------
South Carolina	18	23	5	-------
Tennessee	73	22	-------	-------
	Percentage distribution of counties			
Region	54.1	39.6	5.2	1.1
Alabama	28.4	55.2	11.9	4.5
Florida	44.8	43.3	7.6	4.5
Georgia	62.3	33.3	3.8	.6
Mississippi	25.6	65.9	8.5	-------
North Carolina	73.0	26.0	1.0	-------
South Carolina	39.1	50.0	10.9	-------
Tennessee	76.8	23.2	-------	-------

Certainly counties with rates as high as those discussed above have many inhabitants who have suffered from malaria but have up to now survived.

Deaths from Pneumonia and Influenza

Pneumonia and influenza combined showed in 1940 a death rate of 9.00 per 10,000 in the region compared with 7.03 for the Nation (table VII). Tennessee had the highest rate (10.32) followed closely by South Carolina (10.22) while the lowest rate (7.45) was in North Carolina. The damp climate combined with poor housing and considerable exposure involved in farming are undoubtedly contributing factors to these high death rates.

In 1940 there were 217 counties which had 10.00 or more deaths per 10,000 from influenza and pneumonia and 42 counties which had 15.00 or more deaths per 10,000 (table XI). As pointed out above, the average rate per 10,000 for the Southeast was 9.00 and the national rate per 10,000 was 7.03. Thus there are many areas in the Southeast where the number of deaths from pneumonia and influenza differ so seriously from the national or even regional figures that medical investigation and attention are required.

Deaths from Pellagra

Pellagra, a nutritive deficiency disease, resulted in deaths at the rate of .65 per 10,000 in 1940 in the Southeast as compared to a national rate of .16 (table VII). Alabama had the highest rate (.87) and Tennessee the lowest (.35).

Since the regional death rate from pellagra in 1940 was .65 per 10,000 and the national rate was .16 per 10,000, a rate of 2.00 or more per 10,000 should represent a fairly critical situation. In 1940 there were 35 counties, or 5.8 percent of the region's total, with pellagra death rates of 2.00 or more per 10,000 (table XII). South Carolina was the only State which had no counties in this category; on the other hand Georgia had the largest number (17), or 10.7 percent of all of its counties.

Deaths from Syphilis

Syphilis and other venereal diseases have recently been attacked on a national scale. In the Southeast

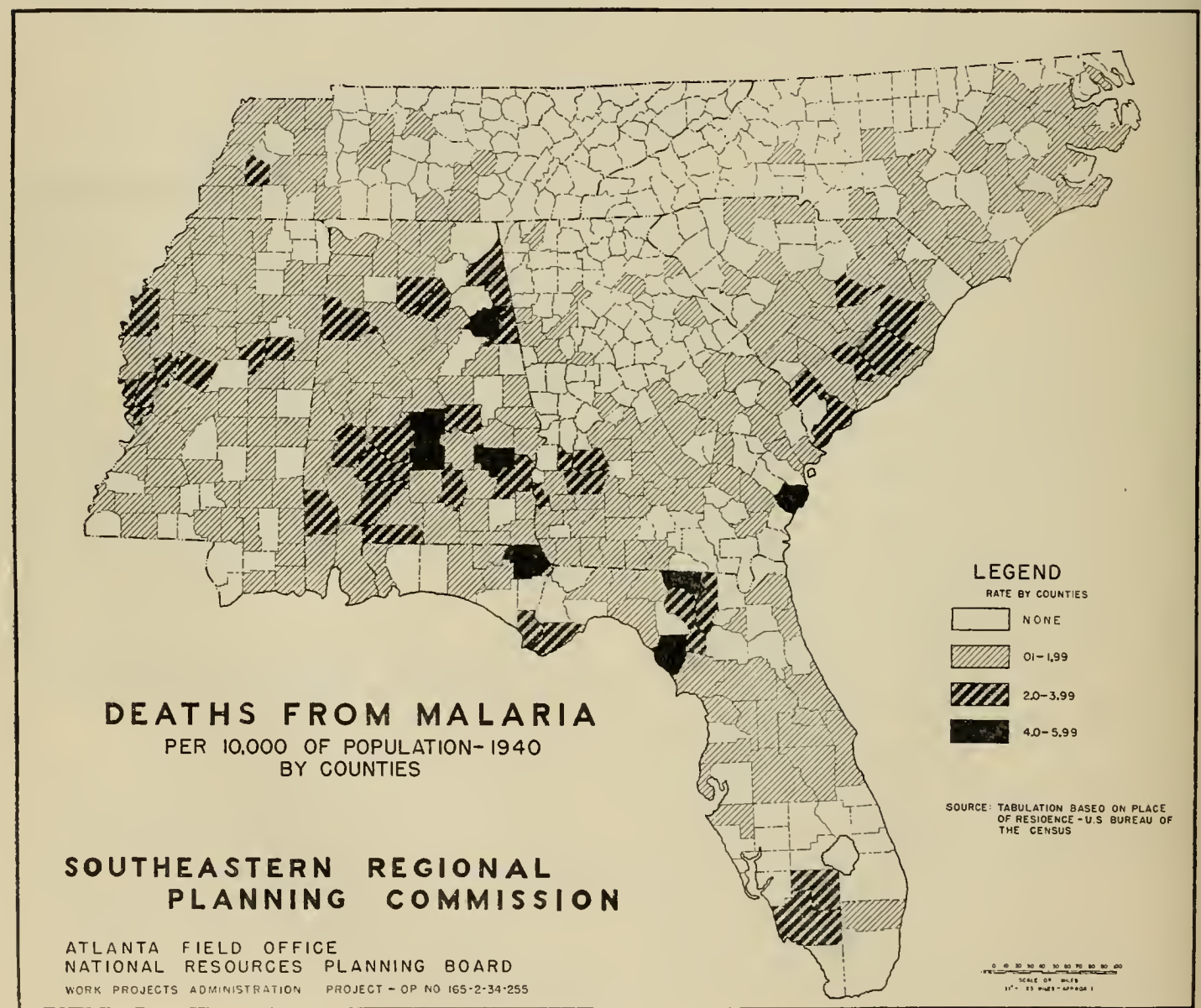

Figure 33

TABLE XI.—*Distribution of counties according to number of deaths from pneumonia and influenza per 10,000 of the population: 1940*

Area	Number of counties according to number of deaths from pneumonia and influenza per 10,000 of 1940 population					
	0.00	0.01–4.99	5.00–9.99	10.00–14.99	15.00–19.99	20.00 and over
Region	4	61	334	175	36	6
Alabama		1	38	25	2	1
Florida	2	9	33	16	5	2
Georgia	1	25	73	46	13	1
Mississippi		4	56	20	2	
North Carolina		15	65	20		
South Carolina			26	16	3	1
Tennessee	1	7	43	32	11	1
	Percentage distribution of counties					
Region	0.7	9.9	54.2	28.4	5.8	1.0
Alabama		1.5	56.7	37.3	3.0	1.5
Florida	3.0	13.4	49.2	23.9	7.5	3.0
Georgia	.6	15.7	45.9	28.9	8.2	.6
Mississippi		4.9	68.3	24.4	2.4	
North Carolina		15.0	65.0	20.0		
South Carolina			56.5	34.8	6.5	2.2
Tennessee	1.0	7.4	45.3	33.7	11.6	1.0

the death rate per 10,000 for syphilis in 1940 was 1.85 compared to a national rate of 1.44 (table VII). Florida had the highest rate (2.65) while North Carolina had the lowest (1.24).

In 1940 there were 76 counties, or 12.3 percent of all counties in the region, with death rates from syphilis of 3.00 or more per 10,000 (table XIII). Since the rate for the region as a whole was 1.85 per 10,000 and for the Nation 1.44, rates of 3.00 or more are serious. Tennessee had only 2 counties with rates of 3.00 or more per 10,000. Georgia had the largest number, 19 counties, in this class. However, this number (19) constituted only 12.0 percent of all of Georgia's counties (Fig. 34).

TABLE XII.—*Distribution of counties according to number of deaths from pellagra per 10,000 of the population: 1940*

Area	Number of counties according to number of deaths from pellagra per 10,000 of 1940 population				
	0.0	0.01–1.99	2.00–3.99	4.00–5.99	6.00 and over
Region	224	357	33	1	1
Alabama	6	55	6		
Florida	37	29	1		
Georgia	63	79	16	1	
Mississippi	22	56	3		1
North Carolina	40	55	5		
South Carolina	5	41			
Tennessee	51	42	2		
	Percentage distribution of counties				
Region	36.3	58.0	5.4	0.2	0.2
Alabama	9.0	82.0	9.0		
Florida	55.2	43.3	1.5		
Georgia	39.6	49.7	10.1	.6	
Mississippi	26.8	68.3	3.7		1.2
North Carolina	40.0	55.0	5.0		
South Carolina	10.9	89.1			
Tennessee	53.7	44.2	2.1		

TABLE XIII.—*Distribution of counties according to number of syphilis deaths per 10,000 of the population: 1940*

Area	Number of counties according to number of deaths from syphilis per 10,000 of 1940 population				
	0.0	0.01–2.99	3.00–4.99	5.00–6.99	7.00 and over
Region	149	391	56	11	9
Alabama	5	48	10	3	1
Florida	15	34	14	2	2
Georgia	49	91	13	4	2
Mississippi	13	57	11		1
North Carolina	22	71	5	2	
South Carolina	1	41	2		2
Tennessee	44	49	1		1
	Percentage distribution of counties				
Region	24.2	63.6	9.1	1.8	1.4
Alabama	7.5	71.0	14.9	4.5	1.5
Florida	22.4	50.7	20.9	3.0	3.0
Georgia	30.8	57.2	8.2	2.5	1.3
Mississippi	15.9	69.5	13.4		1.2
North Carolina	22.0	71.0	5.0	2.0	
South Carolina	2.2	89.1	4.3		4.3
Tennessee	46.3	51.5	1.1		1.1

Multiple Problem Counties

The following tabulation gives the distribution of certain selected counties according to the number of specific-cause-of-death lists on which they occur. The lists include counties with relatively high death rates from maternal causes, tuberculosis, malaria, pneumonia and influenza, pellagra and syphilis.[16] The counties in each of these lists had rates which were above both the regional and national rate for that particular disease.

Counties occurring on three or more of these lists may be considered as presenting fairly serious health problems. Fifteen, or 22.4 percent, of Alabama's 67 counties occurred on three or more of these lists; 9, or 13.4 percent of Florida's 67 counties; 9, or 15.3 percent of Georgia's 159 counties; 10, or 12.2 percent of Mississippi's 82 counties; 3, or 3.0 percent of North Carolina's 100 counties; 5, or 10.9 percent of South Carolina's 46 counties; and 7, or 7.4 percent of Tennessee's 95 counties. On the basis of absolute number

Area	Number of counties according to number of specific-cause-of-death lists on which occurring				
	2	3	4	5	6
Region	131	47	9	1	1
Alabama	12	9	5		1
Florida	15	8	1		
Georgia	27	9			
Mississippi	15	0	3	1	
North Carolina	16	3			
South Carolina	13	5			
Tennessee	33	7			

[16] Counties with 6.00 or more deaths per 10,000 of the population (1940) from maternal causes, with 7.00 or more per 10,000 from tuberculosis, with 2.00 or more deaths per 10,000 from malaria, with 10.00 or more per 10,000 from influenza and pneumonia, with 2.00 or more per 10,000 from pellagra and with 3.00 or more per 10,000 from syphilis, were included in these lists.

as well as proportion of counties with high rates from three or more causes, the Alabama situation is the most serious, while North Carolina has the most encouraging record.

Health Facilities for Meeting Problems

State Health Departments

Table XIV presents for each of the Southeastern States under 38 separate categories of activities, which are now recognized as having public health significance, the State departments which participate in these activities. A glance at the table will indicate that by no means are all health activities at the State level the concern of the department of health and yet it is clear that by far the greater number of activities are concentrated in State health departments. Of the 38 activities 15, or less than half, are the entire or partial concern of the health department of every State in the region. These activities include: vital statistics; acute communicable disease control; tuberculosis control; venereal disease control; maternity hygiene; infant and pre-school hygiene; sanitation of water supplies; sanitation of sewage-disposal facilities; milk sanitation; malaria control; supervision of hotels, restaurants, tourist camps, and other facilities for the traveling public; prevention and care of blindness; dental services; laboratory services, and health education. These 15 activities present a sort of minimum basic pattern for

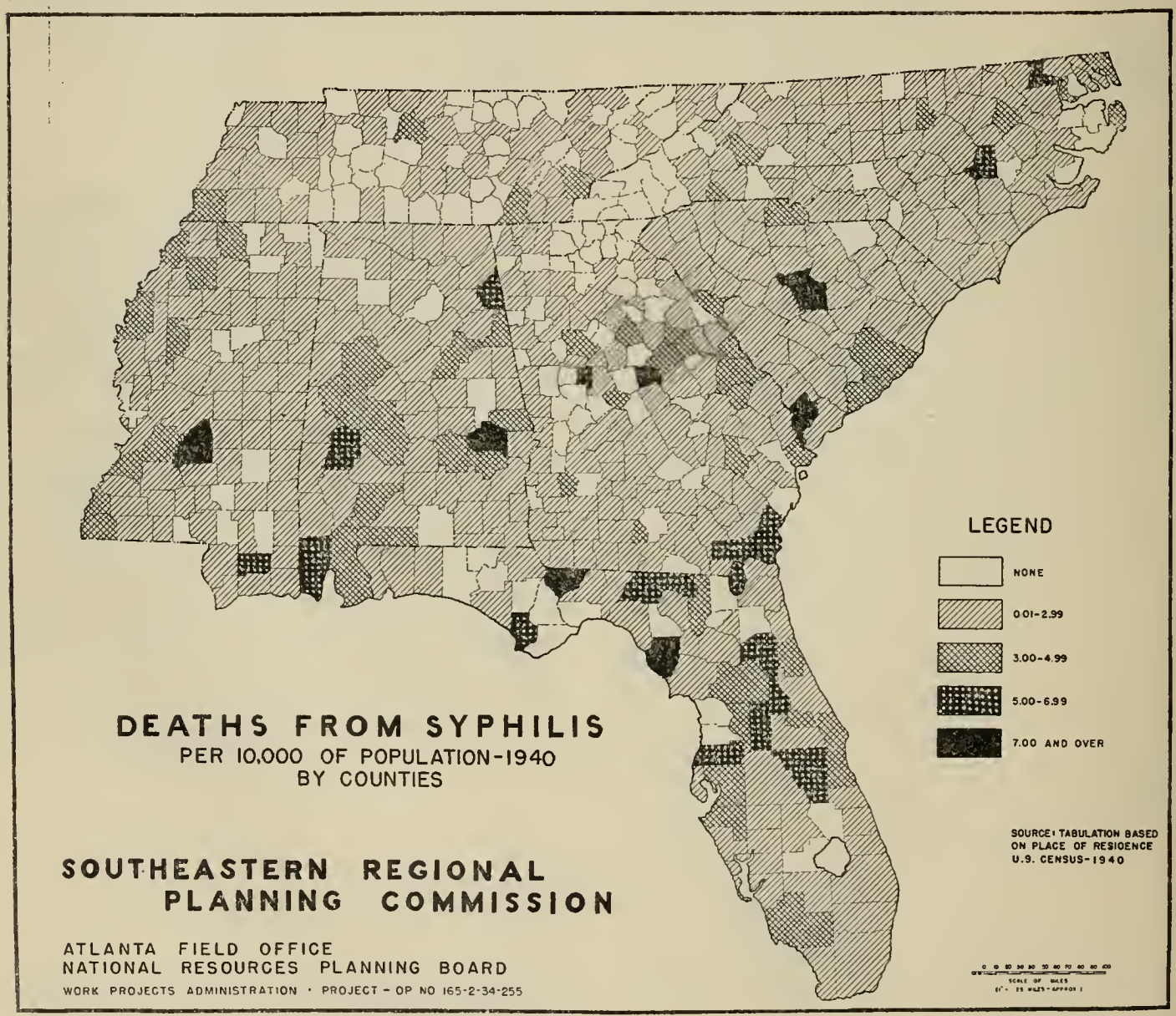

Figure 34

the functioning of State health departments in the Southeast. The different activities which are carried on by State health departments vary from a minimum of 20 in Tennessee to 27 in Alabama and Mississippi. The North Carolina department has 23 separate functions while Florida, Georgia, and South Carolina have 25 distinct activities each. Activities which are carried on by only State health departments in the several States are vital statistics, sanitation of sewage-disposal facilities, garbage collection and disposal, malaria control, pest mosquito control, pneumonia control, hookworm control, health services for migratory labor, and dental services. However, it should be noted in passing that not all of these activities are carried on in every State. Thus three of the seven State health departments are not concerned with garbage collection and disposal, 3 have no program of pest mosquito control, three have no pneumonia control, two no hookworm control, and six provide no health services for migratory labor. The absence of a health function in all State departments of a given State does not necessarily mean a restricted health program. It may mean, as in the case of health services for migratory labor, that there is no serious problem of that nature in the State. Several health activities are entirely absent from every health department of the region, i. e., workmen's compensation; housing control; smoke, fumes, and odor control; mental hospitals; vocational rehabilitation; and general medical care of the needy. One of these, smoke, fumes, and odor control, is found in no State agency among the 7 States. In fact it is the only activity of the 38 that does not appear at least once in some State department of the region. Other departments beside health departments in which health activities appear somewhat frequently are departments of welfare, social security, emergency relief, general assistance, etc.; departments of education, public instruction, etc.; departments of agriculture; departments of labor, labor and industry, labor and immigration, etc.; and special boards, commissions or independent offices established especially for given activities.[17]

State Expenditures and Receipts

Table XV gives for the Southeastern States and the United States the approximate total annual expenditures (1940 or nearest fiscal period) by all official State agencies for health activities and the percentage distribution of these expenditures among the various State agencies performing health functions. The total amount expended in the region was $19,899,600 or 7.0 percent of the national expenditure for health activities at the State level, whereas the region has 14.0 percent of the Nation's population. The per capita expenditure for 1940 by State agencies for health activities was $1.08 in the region compared to $1.90 per capita for the entire Nation. The per capita expenditure was as low as $0.76 in Tennessee and rose to $1.85 in South Carolina. According to the study, *Distribution of Health Services in the Structure of State Government* from which these data were taken: "Differences in expenditures for State health services appear to be conditioned largely by the State's ability to purchase service, for when States are arranged according to per capita expenditures for all State health activities and compared with a corresponding array by wealth, two-thirds of them fall within the same quarterly divisions."

Probably the most striking contrast of the region with the Nation is the percent of expenditure by health departments. In the Southeast as a whole 34.9 percent of all funds expended at the State level for health activities were spent by health departments whereas in the Nation as a whole only 18.5 percent of all funds went to health departments. Thus it would appear that health activities in the Southeastern States are more integrated into one health organization than is generally true throughout the country. Even so, it is noteworthy that just slightly over one-third of health expenditures are those of State health departments. Special boards or commissions and independent State hospitals, laboratories, etc., whose activities are frequently highly expensive, largely account for this situation.

A smaller percent (74.0) of the funds spent for health activities by State agencies in the Southeast is derived from the State than is the case throughout the Nation (81.4 percent). However, the Southeast obtains 17.8 percent from the Federal Government whereas in the Nation as a whole only 6.7 percent are obtained from this source. These figures certainly suggest that an approach is being made to an equitable distribution of Federal funds for health purposes.

Receipts of State and County Health Departments 1940–1941.—The total receipts of State and county health departments in the Southeast for 1940–1941 were $12,871,419.01, or 70 cents per capita of the population (table XVI). Of this amount 36.8 percent came from the Federal Government, 27.8 percent from the States at large, 32.6 from counties, and 2.8 from philanthropic agencies. The percent of receipts from the Federal Government exceeded that from the States at large. Corresponding to the region as a whole, Alabama, Georgia, North Carolina, and Tennessee had a larger percentage of their total receipts from county sources than from the State. Only North

[17] If an item is indicated in Table XIV as "temporarily no activity" it is not considered in this discussion.

TABLE XIV.—*Departments of State government responsible for*

| Activity | Department responsible | | |

specific health activities in Southeastern States: 1940

Department responsible—Continued

	7. Boards of control and of affairs and department of State institutions, etc.						8. Independent State hospital, independent State laboratory						9. Department of conservation						10. State university or college						11. Department of mines and minerals 12. Department of engineering, department of public utilities 13. State experiment station						14. Independent licensing and examining boards						15. Department of motor vehicles, department of public safety 16. Department of civil service and registration, department of registration and education						17. Other departments or offices of State government.					
	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina
																									No activities by these State departments in any of the 7 States listed.												No activities by these State departments in any of the 7 States listed.											
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Carolina had any significant percent of its receipts from philanthropic sources. Under Title V of the Social Security Act the seven Southeastern States received through their health departments in 1940–1941, $1,393,744.43 for maternal and child welfare and under Title VI of the same act the region received for public health work $2,106,125.67. The Southeastern States also received from the Federal Government for the Venereal Disease Control Program $1,183,106.50. Altogether the National Government contributed $4,736,002.49 to State and county health programs of the region during 1940–41.

Local Health Programs [18]

Early in 1942, 412 counties, or 66.9 percent of the region's 616 counties, had full-time health departments or were in full-time health districts. One hundred and thirty-eight of these 412 counties were in health districts of which there were 58 (Table XVII). Every county in Alabama had a full-time health department and every county in South Carolina either had a full-time health department or was in a district with this type of health service.

[18] Data on the local health programs are from special tabulations furnished by State departments of health.

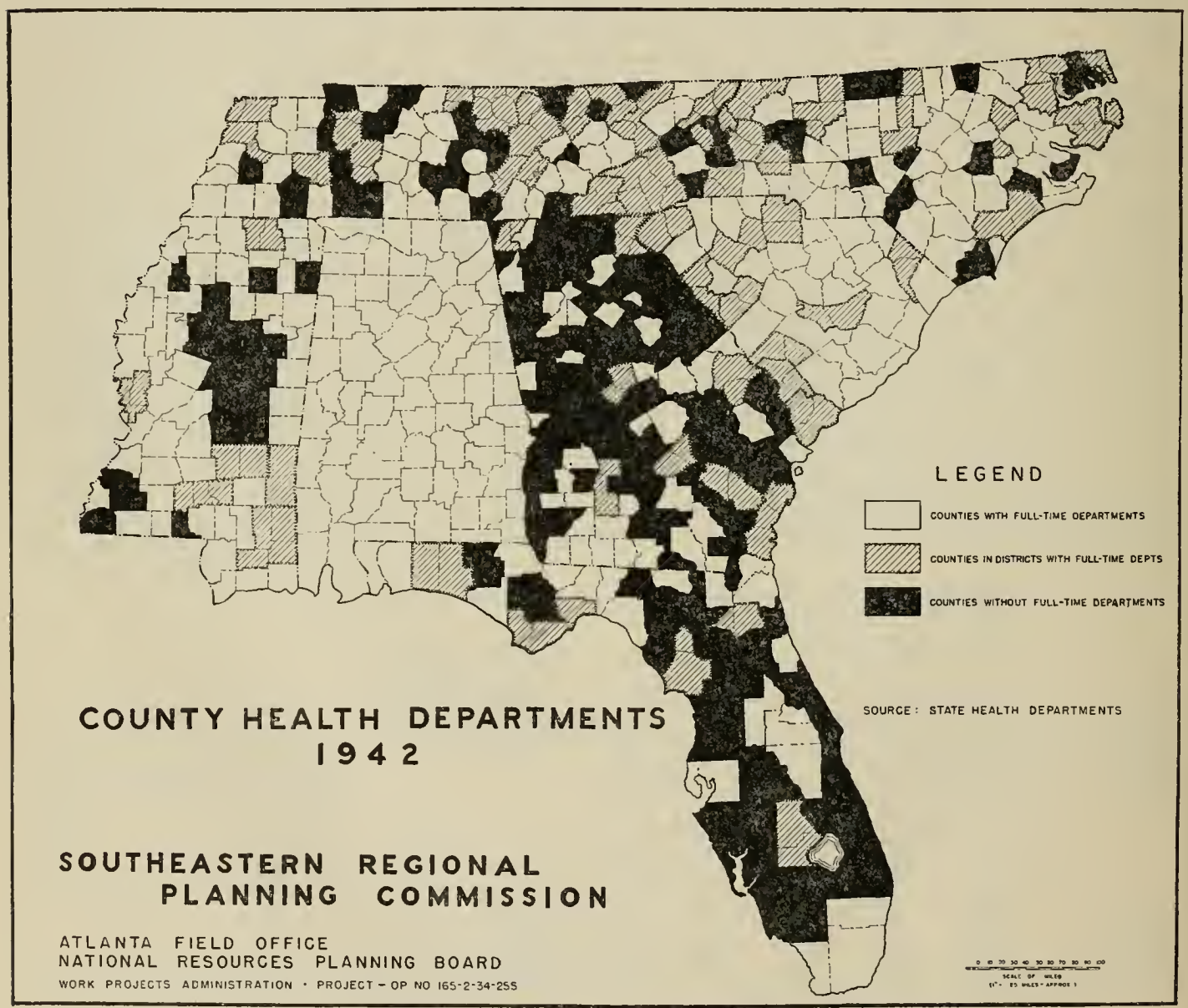

Figure 35

TABLE XVIII.—*Number and percentage distribution of counties and districts with full-time health units according to personnel per 10,000 of 1940 population*

Area	Number of counties and districts according to number of personnel per 10,000 of 1940 population.						
	0.01–1.00	1.01–2.00	2.01–3.00	3.01–4.00	4.01–5.00	5.01–13.50	Total
Region	11	164	90	32	15	4	316
Alabama	2	50	14	1	0	0	67
Florida	0	5	8	4	7	3	27
Georgia	3	17	15	3	2	0	40
Mississippi	0	17	20	9	1	0	47
North Carolina	3	35	6	7	4	1	56
South Carolina	3	20	10	3	0	0	36
Tennessee	0	20	17	5	1	0	43
	Percentage distribution according to number of personnel per 10,000 of 1940 population						
Region	3.5	51.9	28.5	10.1	4.8	1.2	100.0
Alabama	3.0	74.6	20.9	1.5	0	0	100.0
Florida	0	18.5	29.6	14.8	25.9	11.1	99.9
Georgia	7.5	42.5	37.5	7.5	5.0	0	100.0
Mississippi	0	36.2	42.5	19.2	2.1	0	100.0
North Carolina	5.4	62.5	10.7	12.5	7.1	1.8	100.0
South Carolina	8.3	55.6	27.8	8.3	0	0	100.0
Tennessee	0	46.5	39.5	11.6	2.3	0	99.9

Slightly over four-fifths of the counties in North Carolina, slightly more than three-fourths of those in Mississippi, and almost three-fourths of those in Tennessee had full-time health departments or were in full-time health districts. On the other hand, only one-third of Georgia's counties and less than half of Florida's had full-time health departments or were in districts with this type of service (Fig. 35). These figures do not give a complete picture of the local public health forces in the region for there are many counties which have part-time health offices or nursing services or are served directly from time to time by personnel from State departments of health. However, anything less than full-time health units should be considered an ineffective and temporary effort.

In the discussion of death rates as indices of health problems, the extent of occurrence of high death rates from two or more causes in the same county was indicated. The provision of public health services in such counties is imperative. Alabama had 27 and South Carolina had 18 counties with high rates from two or more causes; however, all counties in both States are served by either full-time county health departments or district departments. Among the other Southeastern States, the number of counties having high death rates from two or more causes, and the number of these same counties without full-time health services, are: Florida, 24 and 16; Georgia, 36 and 23; North Carolina, 19 and 6; Tennessee, 40 and 10; Mississippi, 25 and 3.

Excluding Alabama and South Carolina which have full-time health services in all counties, those States having a number of counties with high death rates from three or more causes, and the number of these same counties which are without full-time health services, are: Florida, 9 and 5; Georgia, 9 and 7; Mississippi, 10 and none; North Carolina, 3 and 2; Tennessee, 7 and 2. Counties which have high death rates from three or more causes and are without public health services require immediate establishment of such services. Action is especially demanded in Florida, Georgia, and Mississippi. Among those counties which have full-time health services but in which high death rates from three or more causes obtain, there is need to expand and to make more effective the existing facilities.

Of the 204 counties in the region without full-time health service, 130 counties, or 63.7 percent, had populations that ranked according to size among the lower 35 percent of counties in the region (below rank 400) whereas of the 412 counties with full-time health services only 21.1 percent had populations whose rank according to size was among the lower 35 percent of the region. Thus there is a distinct tendency for counties with small populations to be those without health services. If these counties with small populations are to have health services, their combination into health districts is strongly indicated.

It is also interesting to note that, of the 204 counties without full-time services, 133, or 65.2 percent, had rural farm populations which amounted to 61.0 percent or more of each county's total population, and 152, or 74.5 percent of the 204 counties, had rural farm population which constituted 51.0 percent or more of each county's total population. So it appears that counties without full-time health services not only tend to have small populations but also to be counties whose populations are distinctly rural farm.

Of 316 counties and districts with full-time departments, 55.4 percent had two or less employees per 10,000 of the 1940 population (table XVIII). Only 6.0 percent had above four employees per 10,000 of the population. Obviously most of the health departments in the region are without adequate personnel to carry on an effective public health program. Florida is the only State which had any considerable proportion (37.0 percent) of its health departments with 4.01 or more employees per 10,000 of the population and yet Florida has 35 counties without any full-time health service. Alabama has a full-time health department in each of its counties, yet 98.5 percent of these counties had in their health departments three or less employees per 10,000 of the population. Certainly the 11 counties in the region with one or less employees per 10,000 of the population in their health departments are very inadequately staffed.

TABLE XIX.—*Number and percentage distribution of counties and districts with full-time health units according to annual per capita [1] receipts*

	Number according to annual per capita receipts						
	$0.11–$0.40	$0.41–$0.70	$0.71–$1.00	$1.01–$1.30	$1.31–$1.70[2]	$2.11–$2.50	Total
Region	131	139	39	9	5	2	325
Alabama	39	28					67
Florida	3	10	6	4	3	1	27
Georgia	20	12	7	2	1		42
Mississippi	10	28	12				50
North Carolina	25	20	8	2	1		56
South Carolina	21	13	1			1	36
Tennessee	13	28	5	1			47
	Percentage distribution according to annual per capita receipts						
Region	40.3	42.8	12.0	2.8	1.5	0.6	100.0
Alabama	58.2	41.8	0	0	0	0	100.0
Florida	11.1	37.0	22.2	14.8	11.1	3.7	99.9
Georgia	47.6	28.6	16.7	4.7	2.4	0	100.0
Mississippi	20.0	56.0	24.0	0	0	0	100.0
North Carolina	44.6	35.7	14.3	3.6	1.8	0	100.0
South Carolina	58.3	36.1	2.8	0	0	2.8	100.0
Tennessee	27.7	59.6	10.6	2.1	0	0	100.0

[1] 1940 population.
[2] In the omitted class interval, $1.71–$2.10, no cases occur.

The per capita receipts for health purposes in the region's counties and districts with full-time health services are generally low. Of 325 counties and districts 40.3 percent had annual receipts ranging from 11 to 40 cents per capita and 83.1 percent of the 325 counties and districts received less than 71 cents per person in the population (table XIX). Only 4.9 percent of the counties and districts had receipts which exceed $1.00 per person. Florida supports its established health departments better than any other State, for 29.6 percent of its health units had receipts ranging from $1.01 to $2.50 per capita. Alabama on the other hand, with every county having a health unit, had 100 percent of these counties with receipts ranging from 11 to 70 cents per capita. [19]

Hospital Facilities [20]

According to a survey made by the Census Bureau there were 803 hospitals in the seven Southeastern States in 1939. This number was 11.5 percent of the total in the entire country, whereas the population to be served was 14.0 percent of the national total. According to table XX, 23.8 percent of the region's hospitals were government controlled; the percentage for the Nation was 24.7. The region had a smaller proportion (38.0 percent) of nonprofit hospitals than did the Nation as a whole (42.5 percent) but a larger proportion (38.2 percent) of proprietary institutions

[19] Data on personnel and budgeted receipts are for either the fiscal year 1940–41 or 1941–42. Information was not secured from every county or district having a full-time health department. In each of the following counties there was a large city with a health department for which data were not available: Davidson and Madison in Tennessee; and Dade, Duval, Hillsborough, and Pinellas in Florida. The per capita receipts and personnel per 10,000 for these areas were calculated by excluding the city populations. In several counties in which there was a city health department for which data were available, city and county figures on receipts and personne were combined and per capita receipts and personnel rates were calculated on th basis of the total population of the county.

[20] The 1939 hospital data in this section were secured from *Hospital and other Institutional Facilities and Services*, 1939, Vital Statistics—Special Reports, Bureau of Census (published in 1941). Reports for each of the Southeastern States and United States were used. The 1941 data for hospitals were secured from *The Journal of the American Medical Association*, vol. 116, No. 11, March 18, 1941, pp. 1071 ff.

TABLE XX.—*Distribution of hospitals according to type of control, Southeastern States and United States, 1939*

Area	Number of hospitals according to control			
	Total	Government	Nonprofit	Proprietary
United States	6,991	1,729	2,967	2,295
Region	803	191	305	307
Alabama	101	22	29	50
Florida	112	33	42	37
Georgia	129	33	32	64
Mississippi	100	23	40	37
North Carolina	177	38	92	47
South Carolina	64	22	32	10
Tennessee	120	20	38	62
	Percentage distribution			
United States	100.0	24.7	42.5	32.8
Region	100.0	23.8	38.0	38.2
Alabama	100.0	21.8	28.7	49.5
Florida	100.0	29.5	37.5	33.0
Georgia	100.0	25.6	24.8	49.6
Mississippi	100.0	23.0	40.0	37.0
North Carolina	100.0	21.5	52.0	26.5
South Carolina	100.0	34.4	50.0	15.6
Tennessee	100.0	16.7	31.7	51.6

TABLE XXI.—*Distribution of medical care, beds per 1,000 enumerated population 1940, by kinds of institutions, Southeastern States and United States, 1939*

Kinds of institutions	Region	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina	Tennessee	United States
All institutions	5.57	5.13	7.05	5.51	4.44	5.80	5.62	5.66	9.74
Hospitals and sanitariums (total)	5.26	4.84	6.67	5.34	4.35	5.42	5.45	5.00	9.01
General and other	2.37	2.40	3.45	2.38	1.57	2.24	2.28	2.41	3.84
Tuberculosis	.36	.15	.29	.20	.22	.74	.40	.42	.59
Nervous and mental	2.53	2.29	2.93	2.77	2.56	2.43	2.77	2.16	4.58
Nursing, convalescent and rest homes	.03	.04	.12	.00	.02	.02	.01	.03	.17
Other institutions with infirmaries	.29	.26	.26	.17	.07	.36	.16	.63	.56

TABLE XXII.—*Percent occupancy of hospital beds by kind of institutions, Southeastern States and United States, 1939*

Area	Hospitals and sanitariums (total)	General and allied (others)	Tuberculosis	Nervous and mental
United States	82.0	66.4	85.1	94.7
Region	79.2	61.6	84.7	95.0
Alabama	81.1	67.7	74.6	95.5
Florida	72.7	56.3	91.3	90.2
Georgia	82.2	59.8	86.3	101.2
Mississippi	76.2	49.9	67.0	93.2
North Carolina	76.8	62.6	89.1	86.2
South Carolina	84.5	67.0	90.7	98.1
Tennessee	81.0	63.6	78.0	101.0

(Nation 32.8 percent). In view of the low income level of the Southeast and its relatively high death rates from such causes as tuberculosis and maternity, both of which frequently require hospital care, a considerably larger number of both nonprofit and government-supported hospitals must be established if the health facilities of the region are to meet its needs.

The Southeast had in 1939 somewhat more than one-half (57.2 percent) the number of hospital beds of all types per 1,000 of its population as had the Nation as a whole. The number of beds per 1,000 of the population for every type of hospital in the region was less than similar figures for the Nation (table XXI). Florida had the highest ratio (7.05) of beds per 1,000 of the population for all types of institutions and Mississippi the lowest (4.44).

According to table XXII, the percent occupancy for hospitals and sanitariums of all types was 79.2 for the region while the percent for the United States was 82.0. While this difference is not great, it is significant when it is observed that the number of hospital and sanitarium beds per 1,000 of the population (5.26) in the region is considerably less than the number (9.01) for the Nation. The region not only has less beds in relationship to the population but the percentage of occupancy of the hospital beds available is lower than in the Nation as a whole. Of course, this could be interpreted as less illness in the region, but it is much more probable that

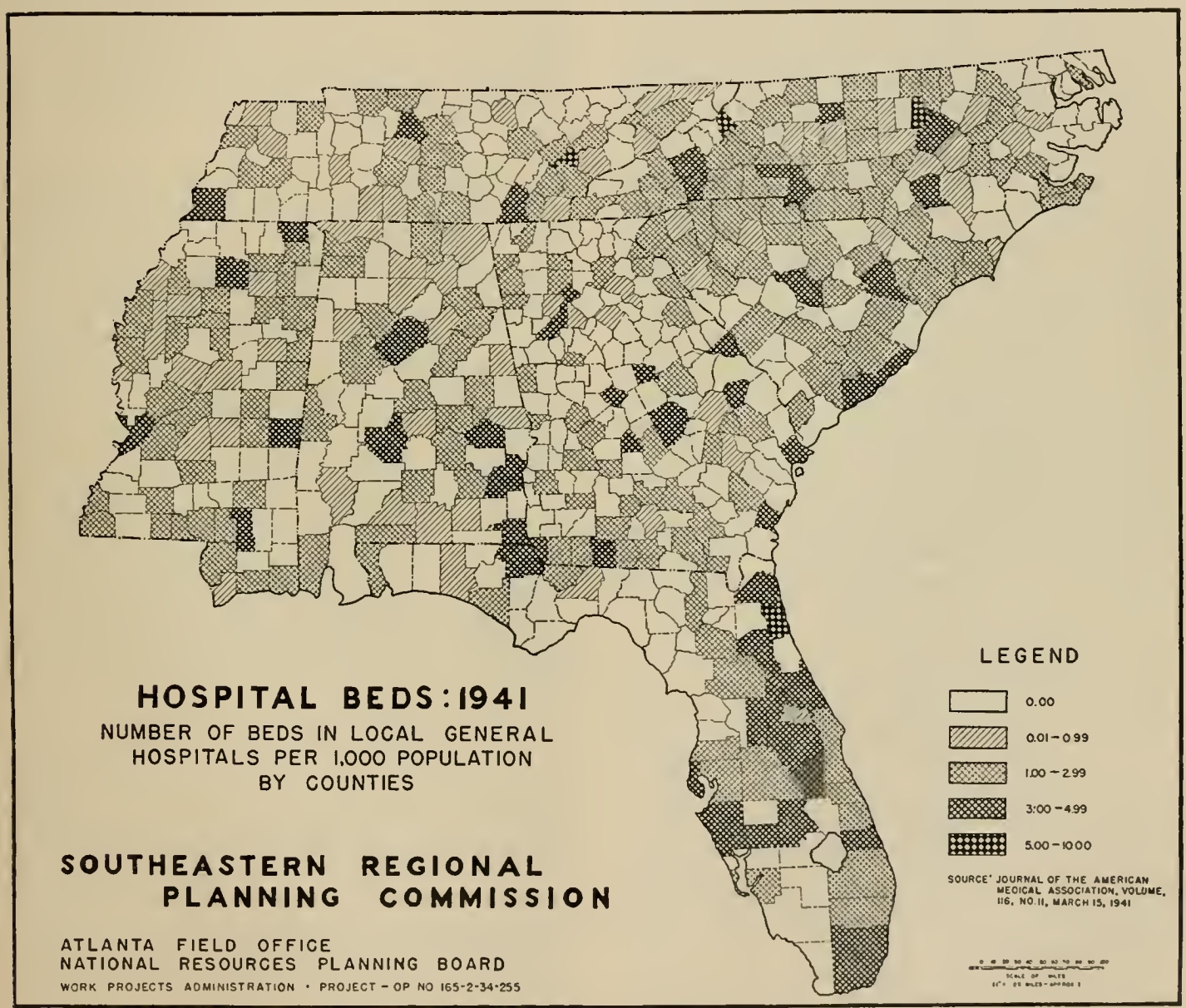
HOSPITAL BEDS: 1941
NUMBER OF BEDS IN LOCAL GENERAL HOSPITALS PER 1,000 POPULATION BY COUNTIES
SOUTHEASTERN REGIONAL PLANNING COMMISSION
ATLANTA FIELD OFFICE
NATIONAL RESOURCES PLANNING BOARD
WORK PROJECTS ADMINISTRATION · PROJECT - OP NO 165-2-34-255
LEGEND
0.00
0.01 - 0.99
1.00 - 2.99
3.00 - 4.99
5.00 - 10.00
SOURCE: JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, VOLUME, 116, NO. 11, MARCH 15, 1941

Figure 36

people simply do not have sufficient income to meet the costs of hospital care. The smaller proportion of non-profit as well as government-supported hospitals in the region when compared to the Nation as a whole is probably an important factor in this connection. Occupancy of existing facilities is lowered because, more often than in the Nation as a whole, hospitals are under proprietary control with prohibitive costs for the disproportionately large low-income class of the region. Evidence of the working of this factor may be observed in the fact that nervous and mental hospitals, which are generally under government control, have in the region an occupancy percentage of 95.0 as against only 61.6 for general and allied hospitals.

In the case of ordinary illness it is the local general hospital which must render service. Moreover, any consideration of available hospital service within a local area (county) appears to be more accurate when only the general local hospitals are considered. Table XXIII presents a distribution of counties for 1941 according to the number of beds per 1,000 of the population in general local hospitals and related institutions. (Also see Fig. 36.) There were 312 counties, slightly over half of the number in the region, which had no hospitals of this type in 1941. Forty-one percent of the countries in the Southeast had from 0.01 to 2.99 beds per 1,000 of the population. Less than 1 percent (0.7) of the counties had 5 or more beds per 1,000 population. There was a fairly wide range among the States in the percentage of counties without local general hospitals, from 34.8 percent in South Carolina to 65.4 in Georgia. Florida and North Carolina had the largest proportion of counties with three or more beds per 1,000 of the population, the percentage being 22.4 and 9.0 respectively. As might be expected, counties with large percentages of urban population tended to be the counties which had the greater number of beds per 1,000 of the population.

TABLE XXIII.—*Distribution of counties according to number of beds in local general hospitals and related institutions, 1941*

Area	Number of counties according to number of beds per 1,000 population					
	Total	0.00	0.01–0.99	1.00–2.99	3.00–4.99	5.00–9.99
Region	616	312	63	190	47	4
Alabama	67	31	14	17	5	0
Florida	67	34	3	15	14	1
Georgia	159	104	8	37	10	0
Mississippi	82	36	10	31	5	0
North Carolina	100	37	12	42	7	2
South Carolina	46	16	4	23	3	0
Tennessee	95	54	12	25	3	1
	Percentage distribution of counties according to hospital beds per 1,000 population					
Region	100.0	50.7	10.2	30.8	7.6	0.7
Alabama	100.0	46.3	20.9	25.4	7.4	.0
Florida	100.0	50.7	4.5	22.4	20.9	1.5
Georgia	100.0	65.4	5.0	23.3	6.3	.0
Mississippi	100.0	43.9	12.2	37.8	6.1	.0
North Carolina	100.0	37.0	12.0	42.0	7.0	2.0
South Carolina	100.0	34.8	8.7	50.0	6.5	.0
Tennessee	100.0	56.8	12.6	26.3	3.2	1.1

TABLE XXIV.—*Distribution of counties according to number of physicians per 10,000 of the population: 1940*

Area	Number of counties according to number of physicians per 10,000 of the population							
	1.00–2.99	3.00–4.99	5.00–6.99	7.00–8.99	9.00–10.99	11.00–12.99	13.00–14.99	15.00 and over
Region	39	170	189	116	53	25	7	17
Alabama	3	22	28	8	2	3	0	1
Florida	4	14	10	10	12	8	2	7
Georgia	15	41	48	33	14	3	2	3
Mississippi	2	27	28	15	6	3	0	1
North Carolina	7	27	36	16	7	4	1	2
South Carolina	2	18	16	5	2	0	2	1
Tennessee	6	21	23	29	10	4	0	2
	Percentage distribution of counties							
Region	6.3	27.6	30.7	18.8	8.6	4.1	1.1	2.8
Alabama	4.5	32.8	41.8	11.9	3.0	4.5	-------	1.5
Florida	6.0	20.9	14.9	14.9	17.9	11.9	3.0	10.5
Georgia	9.4	25.8	30.2	20.7	8.8	1.9	1.3	1.9
Mississippi	2.4	32.9	34.1	18.3	7.3	3.7	-------	1.2
North Carolina	7.0	27.0	36.0	16.0	7.0	4.0	1.0	2.0
South Carolina	4.3	39.1	34.8	10.9	4.3	-------	4.3	2.2
Tennessee	6.3	22.1	24.2	30.5	10.5	4.2	-------	2.1

Number and Distribution of Physicians [21]

In the last analysis the protection and maintenance of the people's health rests upon their physicians. They are the administrators of the public health program; from their ranks come the hospital staffs; and it is to them that the citizen must turn for medical care in the home. In 1940 the Southeast had 15,723 physicians. With 14.0 percent of the Nation's population the region had only 9 percent of its physicians. There were in the region 8.5 physicians for each 10,000 of its population, while in the Nation there were 13.3 physicians for each 10,000 of the population.

In 1940 every State in the region, except Florida, had more than 80 percent of its counties with less than 9 physicians per 10,000 of the population, or stated in reverse order, with 1,112 or more persons for each physician (table XXIV). Undoubtedly in many instances counties with less than 9 physicians per 10,000 of the population have pressing demands for additional physicians. Only a small proportion of counties in any State had 13 or more physicians per 10,000 population, with the possible exception of Florida which had 13.5 percent of its counties in this category.

[21] Data are from *American Medical Association Directory*, Sixteenth Edition, 1940, American Medical Association, Chicago, Ill.

RECOMMENDATIONS[22]

The low dietary standards of the Southeast, the relatively high death rates from certain diseases, and the absence of adequate facilities for meeting health problems are symptoms of complex social forces. A primary factor is the low level of income of a large sector of the population. Therefore, the number one action required for better health is not confined to public health; it is in the broader field of economics. It is a responsibility, certainly, of the health program to place at the forefront of its educational activities the necessity for raising the level of income in the region.

With this as a basic approach to the solution of the region's health problems, the following more concrete activities are proposed:

1. That all existing county and district health departments as well as State departments inaugurate a program of nutritional research and education. In order to do this, a goal for each county and district department should be to add to its personnel a technician trained in the field of nutrition and education. If public-health programs are to be preventive, a more effective step could not be taken. This nutrition expert would function through schools or maternal, child, prenatal, and even nutrition clinics. In many instances the mobile type of clinic would be advisable. Such a program might help people of all income levels to utilize their food expenditures and resources more advantageously in the interest of good dietary practices. In State health departments a division of nutrition cooperating with the division of home economics or vocational studies of State departments of education would become the planning agency for the nutritional program throughout the State.

2. That teachers, doctors, public healthmen, and all other individuals and groups interested in the dietary problems of the region become acquainted with the crop-adjustment program of the United States Department of Agriculture (see chapter, "Agricultural Development"), in order that the proposed crop changes looking toward a higher level of nutrition may be accepted as the farm practice of the region.

3. That there be a reorganization of the health program at the State level with the incorporation into health departments of functions which are essential to a complete health program. This reorganization is essential to a well rounded, thoroughly integrated, and economically efficient program. There are functions, which in some States are not now in State health departments but belong distinctly in these departments, that should be transferred from other agencies or simply added as a new function of the State health department, such as, control of tuberculosis hospitals, control of mental hospitals, food and drug control, licensure of professions and agencies significant to public health, rodent control, garbage control and disposal, sanitary control of milk, etc. A few of these functions, as well as others that are now shared by other State agencies, might be shared but in most instances the State health department should have prime authority though in some borderline functions other State agencies might well exercise this primary authority.

A great deal of support might be developed if such of the personnel as meet professional standards were transferred at the same time as the function.

4. That a major goal of the health forces in the region should be the establishment of full-time health departments in the region's counties now without public health services. The counties are distributed among the States as follows: Florida 35, Georgia 106, Mississippi 19, North Carolina 19, and Tennessee 25. These counties without health units tend to have small populations, in fact, 130 of them fall within the lower third of the counties in the region arrayed according to size of population. A good proportion of them also have large rural farm populations. In addition, the high death rates from several causes in 38 counties indicate the necessity for immediate establishment of local health services. If health services are to be made available in these counties, health programs must be developed in terms of particular situations. This means that, as a beginning, health districts rather than county units should be established for a number of these counties which adjoin each other. This is a possibility in practically every State, especially in Georgia, Florida, and Mississippi. It also means that, since these counties are essentially rural farm areas, services of a mobile nature should be attempted insofar as costs permit. If necessary, the United States Public Health Service, as well as State health departments, may have to alter their methods of distributing funds in order that these counties may have public health services (see recommendation No. 5).

5. While present methods of distributing Federal and State funds to counties are focused in the right direction, it is recommended that still more adequate and uniform methods be devised for this purpose. Basic studies are needed of (1) ability of counties to finance public health programs and (2) health needs of counties. Leaders in the field of education have given considerable attention to this type of problem in their field and have begun to devise techniques, especially in the matter of ability to finance educational service, that may be highly recommended. Thus in Alabama the measures with

[22] For recommendations relative to malaria control, see chapter, "Water Resources Development," above.

their respective weightings used in calculating ability of counties to pay for education are as follows: [23]

Measure as percentage of State total	*Weighting*
1. Sales tax paid	1
2. Automobile license paid	5
3. Public utility valuation	3
4. Income tax paid	1
5. Farm income	1
6. Value added by manufacture	1

For a given county the economic index was the weighted average of the six measures expressed as a percentage of the State total. This type of approach is fundamental in arriving at an equitable distribution of Federal and State funds whether for educational or public health purposes.

The technique involved in determining health needs is probably more difficult than that involved in determining educational needs. Significant factors to consider are population density, and mortality and morbidity rates according to causes. Progressive State departments can do a much needed job of research in working out along the lines suggested above more equitable procedures for distributing State and Federal funds.

6. For both State and local health departments, it is recommended that in all instances the personnel employed meet the qualifications recommended by the State and Territorial health officers, at their conference with the Surgeon General in 1935, and presented in the bulletin of the United States Public Health Service entitled, "The Public Health Program Under Title VI of the Social Security Act", supplement No. 126, 1937.

7. For those counties and districts with health departments, it is recommended that the number of personnel be increased in all instances where it falls below at least four per 10,000 of the population.

8. One of the most serious problems facing the public health program is the absence of trained personnel. Under Title VI of the Social Security Act the Federal funds made available were designated for the purpose of "establishing and maintaining adequate public health services, including the *training of personnel for State and local health work.*" It will require some time for these expenditures to register themselves in more and better trained personnel. In addition to this effort, it is recommended that universities with departments of medicine place more emphasis on training doctors and nurses for employment in the field of public health. Medical schools need to give more attention to this field in terms of courses, point-of-view, and professional status.

9. Continued efforts should be made in all States to bring morbidity reporting up to a sufficiently high standard of coverage to warrant its use in indicating areas in which diseases of various kinds occur.

10. There are 312 counties in the region without local general (registered) hospital service. These counties without local general hospitals are distributed among the States as follows: Alabama 31, Florida 34, Georgia 104, Mississippi 36, North Carolina 37, South Carolina 16, Tennessee 54. As an immediate goal, construction of health and diagnostic centers to serve both practicing physicians and public health agencies should be undertaken in these 312 counties. A long-time program of hospital services in the region should begin with a thorough study of these 312 counties and also of the 63 counties with from 0.01 to 0.99 beds per 1,000 of the population. From this investigation a program may be developed for more adequate hospitalization, under a centralized plan. Such a plan would seek to maintain maximum hospital occupancy as a means of lowering individual cost. Modern highway development and means of transportation make possible a centralized plan whereby, in the central unit, there would be available complete and adequate facilities where the more difficult cases requiring specialized care could be referred from tributary hospitals. The tributary hospital should, of course, be prepared to handle average emergency cases but should not be counted upon to provide all of the facilities which are necessary for difficult cases. Presumably, the diagnostic centers previously mentioned might be converted into tributary units. Federal aid will be needed to provide the original capital for instituting and temporarily maintaining this program. Alongside of the institutional development will be needed a plan of hospital care insurance to insure the utilization of services provided.[24]

[23] "Alabama's New Index of Local Ability to Pay for Education," by Francis O. Cornell, U. S. Office of Education, and R. L. Johns, Alabama State Department of Education, reprinted from *The School Executive*, June 1941, New York.

[24] The requirements for personnel in the medical units of the Army, Navy, and Red Cross are draining off doctors and nurses, to such an extent that a type of centralized service similar to that indicated in this recommendation may have to be initiated immediately in order to provide medical care for the home front.

HOUSING DEVELOPMENT[1]

A program of regional development for the Southeast requires special concern with the problems of housing. This necessity arises both because of the prevalence of substandard housing and because housing conditions are capable either of speeding or retarding economic growth and development. As a region which, perhaps more than any other in the Nation, faces a far-reaching economic growth and development before it approaches the limits set by its natural resources and population, the Southeast has a particular stake in better housing.

As in matters of health and education, there is also a national interest in raising the general level of the quality of housing in the Southeast. Elsewhere in this report it has been pointed out that the national and Southeastern birth rates, when compared, indicate that an increasing portion of the national population will come from the region. The strength of body and mind of the Nation in years ahead will be increasingly influenced by conditions affecting education and health in the Southeast. Housing is of vital importance among these conditions.

Since the family is the cell out of which the region grows, the house becomes, in a real sense, the seedbed from which the strength of the region must develop. It is the environment in which the most formative and sensitive years of child life are spent, and it must be one which provides for the development of physical, mental, moral and social health.

Changes in economic life in the Southeast during recent decades have complicated the problem of adequate housing. In an earlier and simpler period of the region's history, the predominance of rural life meant a very small degree of population mobility. People tended to remain in or very near their places of birth. Land ownership was more widespread, and home ownership was a satisfactory solution to the problem of housing. With the development of urban areas and the specialization of occupations, the need for population mobility increased. For large numbers of people land ownership and home ownership became an encumbrance. The demand for rental housing, consequently, has become increasingly great. However, new housing construction provided by private builders is generally for sale rather than rental. The cost of a new home and the distribution of income are such that new housing privately built and sold at a profit is available, roughly, to the upper economic third of the population. Because of defective construction, failure to make necessary structural changes in converting large dwellings into multiple-family units, and failure to eliminate worn-out houses, the supply of rental housing for the lower two-thirds of the population has suffered in quality. At its worst it has been slum housing, the growing menace of which has forced the Nation into public housing. However, there is sound reason to believe that the field of low-cost rental housing presents one of the great new forms of private investment, as the Metropolitan Insurance Company, for example, is demonstrating in New York.

The drastic increase in farm tenancy since 1900, the distressed condition of world markets for cotton and tobacco, and the ravages of the boll weevil have produced widespread poverty in Southern rural areas. Many family incomes have been adequate to provide only the crudest form of shelter. Curtailment of land ownership in the tenancy system has brought a corresponding curtailment in home ownership. The private construction of new rental housing in rural areas has not developed since it would be extremely unprofitable. The Nation has been forced into public housing activities closely related to programs of rehabilitating worthy tenants into farm ownership.

Since the beginning of the last decade, various public and private housing programs have been at work in the region. A measurable improvement in the quality of urban and rural housing has resulted. The operation of these programs has, perhaps, been more significant in the testing they have provided for various approaches directed at the improvement of housing. The knowledge and the experience gained in the prosecution of those programs will be of direct usefulness in the post-war period, when it will be possible to make a renewed attack upon the housing problem. Only a meager start has been made to date in the construction and reconstruction of housing in the Southeast. In this field lies one of the largest and most socially useful opportunities for public and private investment.

Characteristics of Southeastern Housing

Because of the planlessness of nearly all American communities, the lack of building regulations during their early years of rapid growth, and because of the heedless haste with which individuals erected structures without thought of the effect upon adjoining buildings, the Nation suddenly awoke, not long ago, to find itself with a housing problem and a city redevelopment problem of the first magnitude. Outside New York

[1] Prepared by Dr. Edith Elmer Wood, consultant, U. S. Housing Authority.

TABLE I.—*Percent of urban houses having certain defects, by geographic regions* [1]

Nature of defect	United States total	Southeast	Southwest	Northeast
Condition of structure:				
Requiring major repairs	13.9	19.8	15.4	14.1
Unfit for use	2.3	3.4	1.8	2.5
Dwelling units lacking:				
Running water	5.3	12.8	14.9	3.5
Private indoor flush toilet	14.6	32.1	25.3	12.2
Bathing equipment	19.9	41.0	26.1	19.5
Electric (or gas) lighting	4.4	25.4	16.0	2.9
Dwelling units with congested occupancy:				
Extra families	5.5	8.9	8.6	5.8
1.01–2 persons per room	16.2	22.3	20.4	14.7
2.01 or more persons per room	1.2	3.5	3.5	0.9

[1] Adapted from *Urban Housing*, a summary of Real Property Inventories conducted as work projects 1934–36, Works Progress Administration, Division of Social Research, 1938, p. 326. The included urban places were covered 100 percent in the surveys made and together contained 44 percent of urban population in the United States.

the rest of the country used to believe it had no slums because it had no six-story brick tenements. It knows better now. The United States has undoubtedly the largest per capita acreage of urban blight of any Nation in the Western World.

There is no difference in kind between the housing problems of the Southeastern States and those of the Nation as a whole—only in emphasis. A widely accepted generalization is that the average amount of worn-out and otherwise substandard housing in the United States needing replacement or rejuvenation is one-third of the total supply, but it is obviously more in some localities and less in others.

The 1938 *Report on Economic Conditions of the South* estimates that one-half the housing in the South needs replacement. The report covers 13 States, 6 in addition to the group with which we are here concerned, but there is no reason to believe that their exclusion would materially alter that estimate.

The preponderantly rural character of the Southeast accounts for part of the difference, because farm and other rural housing always has a higher percentage of the deficiencies which make housing substandard. But comparing communities of the same class, the region has more substandard housing than other regions, just as it has more poverty. The deficiencies are part of the same economic complex, in which each strand appears as cause and as effect of all the others.

The various real property surveys and farm housing surveys made as relief projects since 1933 furnish far better information on housing conditions than has been available heretofore. The comparatively poor conditions of urban housing in the Southeast are revealed by the facts presented in table I.

If we arranged the 48 States in order of the frequency of the four facilities listed in table II, we should find Alabama ranking number 48 in three instances and Mississippi in this position in the fourth.

TABLE II.—*Percent of farm houses without certain facilities, Southeastern States and United States* [1]

States	Without water in house	Without bathtub	Without electricity	Without indoor flush toilet
United States total	69.6	88.8	82.2	91.5
Alabama	96.6	98.8	97.3	99.1
Florida	55.7	78.6	73.0	79.5
Georgia	93.7	92.2	96.5	98.6
Mississippi	95.3	97.6	97.4	98.2
North Carolina	76.9	96.8	90.5	97.1
South Carolina	86.5	97.4	96.4	98.3
Tennessee	91.8	97.3	94.4	97.9

[1] U. S. Department of Agriculture Miscellaneous Publication No. 323, 1939, based on an 8 to 10 percent sample of farm housing in all States except New York and Pennsylvania, surveyed in 1935 by the Bureau of Home Economics in cooperation with the Bureau of Agricultural Engineering and the Extension Service.

According to an index of structural condition, developed by the Farm-Housing Survey, the West South Central region had the lowest rating and the Southeast region next.

Another source of information is the National Health Survey made in 1935–36 which recorded two housing items which have an especially close relation to health, namely sanitary facilities and room occupancy. Its regions have different boundaries from those used in other surveys and in this report. Still it is worthwhile to note the summaries obtainable from Bulletin 5 of the Survey's preliminary report. The recording of occupancy where persons exceed rooms by more than 50 percent is especially useful, since this is about where pathological effects become clearly demonstrable. The South has a considerably larger proportion of its households with more than 1.5 persons per room than has any other major region in the Nation (table III). Furthermore, compared with those in other major areas of the Nation, all classes of cities in the

TABLE III.—*Percentage of households showing various degrees of crowding, by geographic areas*

Geographic area	Percentage of households with		
	More than 1 person per room	More than 1½ persons per room	2 or more persons per room
Northeast	14.6	3.9	1.8
North Central	15.4	5.5	3.6
West	10.2	3.5	2.3
South	24.9	12.1	8.8

TABLE IV.—*Percentage of urban households which lack private indoor flush toilets, by geographic area and size of city*

Size of city	Percentage of households			
	Northeast	North Central	West	South
500,000 and over	6.8	9.9	5.4	----
100,000 to 500,000	5.3	11.9	9.5	22.1
25,000 to 100,000	11.5	16.9	8.3	27.3
Under 25,000	16.7	28.1	15.2	40.8

South have higher percentages of their households lacking private indoor flush toilets (table IV).

Table V shows how much more rural the Southeastern States are than the country as a whole, with the exception of Florida, which is close to the national average. Florida is, of course, in many other points very different from her sister States.

TABLE V.—*Total population and degree of urbanization for Southeastern States, 1930 and 1940* [1]

State	Population total	Percent urban	
	1940	1940	1930
United States total	131,669,275	56.5	56.2
Alabama	2,832,961	30.2	28.1
Florida	1,897,414	55.1	51.7
Georgia	3,123,723	34.4	30.8
Mississippi	2,183,796	19.8	16.9
North Carolina	3,571,623	27.3	25.5
South Carolina	1,899,804	24.5	21.3
Tennessee	2,915,841	35.2	34.3

[1] United States Census of Population 1940.

The total population of the region, 18,425,162, is nearly 14 percent of the national population. It has increased more rapidly since 1930 than that of the United States. Both in the region and Nation, the average size of family has decreased, and the number of families has accordingly increased more than the population. This calls for more rapid building of new houses than the population increase, taken alone, would indicate. In the building of new houses during the past decade, the Southeast as a whole has done better than the national average, although Alabama, Georgia, and Mississippi were behind the National rate of gain.

TABLE VI.—*Occupied dwelling units, Southeastern States, 1940* [1]

State	Occupied dwelling units	Percent increase since 1930
United States total	34,861,625	16.6
Alabama	673,914	13.9
Florida	520,135	38.2
Georgia	752,286	15.2
Mississippi	534,867	13.4
North Carolina	789,566	22.6
South Carolina	434,922	18.9
Tennessee	715,425	19.1
Total for region	4,421,115	19.3

[1] United States Census, Housing, 1940.

The total number of occupied dwelling units in the region is only 12.7 percent of the total in the Nation while the population is 14 percent. The difference is due, of course, to the larger average size of families in the South. (See table VI.)

The increase in regional housing during the decade, has been about one-sixth greater than for the Nation, indicating a more healthy condition in the residential construction industry which reached near extinction throughout the United States toward the middle of the decade and has been slowly recovering since. The actual net number of additional occupied dwelling units in the region was 718,156. The Bureau of Labor Statistics records 43,391 new nonfarm dwelling units in the 7 States during the first 6 months of 1941. This would be a 20 percent increase over the 1930–40 average.[2]

It further appears from the 1940 Census that the total number of dwelling units in the region at the time of the 1940 Census, including vacant ones, was 4,674,272, of which 3,028,700 were in rural territory and 1,645,572 in urban. Nearly two-thirds of the homes of the Southeast are, therefore, rural (64.8 percent) and only a little over a third urban (35.2 percent).

TABLE VII.—*Certain characteristics of housing for the Southeast*

	All dwelling units	Owner [1] occupied	Nonwhite [2] occupancy	Congested [3] occupancy	Major repairs [4] needed	No private bath [5]
The Southeast	4,674,272	1,646,446	1,411,693	838,810	1,294,073	3,285,950
Urban	1,645,572	506,624	519,195	206,205	298,831	741,447
Rural nonfarm	1,135,385	418,668	273,687	191,822	290,976	807,111
Rural farm	1,893,315	721,154	618,811	440,783	704,256	1,737,392
By percent: [6]						
The Southeast		37.2	31.9	43.4	29.3	74.1
Urban		32.3	33.1	13.3	19.4	48.2
Rural nonfarm		39	25.5	18.3	27	74.9
Rural farm		40.6	34.8	25.2	39.1	96.6

Compiled from *Characteristics of Housing by States*, U. S. Census, 1940, Series H–4, table 3, Nos. 36, 32, 30, 14, 23, 16, 27.

[1] Statisticians will find in the Census H-4 bulletins the omitted column, "Total occupied dwelling units," of which this and the next two columns are subheads. Major repairs and the absence of bathing facilities are recorded for *all* dwelling units.

[2] "Nonwhite" is the Census term which includes American Indians and certain Asiatics as well as Negroes. Except in a few limited localities, nonwhite population in the Southeastern region means, essentially, Negro population.

[3] "Congested occupancy" has been substituted for the Census heading "Persons per room, with 1.51 or more," which would convey little meaning to the general reader. See the discussion in connection with Table III.

[4] Includes "Unfit for use" as found in the Real Property Inventories (see Table I). Defined as "repairs needed on parts of structure such as floors, roof, plaster, walls, or foundation, the continued neglect of which would * * * create a hazard to its safety as a place of residence."

[5] Includes "no installed tub or shower" and "facilities shared by two or more households."

[6] Percentages are based on the total numbers reporting on various items of the housing schedule used in the 1940 census; these totals appear in the Census H–4 bulletins.

Census of Housing: 1940

Tables I to IV, though of great significance, are based on samples. The U. S. Census, however, attempts complete national enumeration. The 1940 Census records many housing facts for the first time in the United States; not all of these have as yet been published.

Table VII affords a condensed composite picture of several important housing characteristics for the Southeastern region as a whole. These characteristics are not uniform from State to State, as Table VIII indicates. Tennessee, Florida, and North Carolina have a

[2] The comparison is not exact, as the first figure includes farm houses while the second excludes them. The building rate for farm houses is, however, very low. An undetermined part of the 1941 increase would be connected with national defense.

TABLE VIII.—*Certain characteristics of housing, by States*

	All dwelling units	Owner [1] occupied	Nonwhite [1] occupancy	Congested [1] occupancy	Major repairs [1] needed	No private bath [1]
Alabama	708,043	226,460	233,823	151,995	246,911	535,675
Urban	232,437	70,224	85,895	33,987	57,426	117,776
Rural nonfarm	164,531	51,943	47,709	33,470	51,024	127,992
Rural farm	311,075	104,293	100,219	84,538	138,461	298,907
Alabama [1]—by percent		33.6	34.7	22.9	37.0	80.3
Urban		30.9	37.8	15.1	26.7	54.8
Rural nonfarm		33.0	30.3	21.6	32.7	82.0
Rural farm		36.1	34.6	29.7	46.8	98.0
Florida	590,451	226,655	135,767	63,890	109,425	257,204
Urban	337,494	115,528	74,333	24,188	37,149	89,432
Rural nonfarm	174,213	70,654	42,169	24,792	43,461	102,855
Rural farm	78,744	40,473	19,265	14,910	28,815	64,917
Florida [1]—by percent		43.6	26.1	12.5	19.7	46.2
Urban		39.2	25.2	8.3	11.8	28.4
Rural nonfarm		46.4	27.7	16.5	26.2	62.0
Rural farm		55.4	26.4	20.7	38.1	85.9
Georgia	796,715	231,689	259,795	143,466	212,931	572,816
Urban	296,325	76,986	105,163	44,264	54,857	148,994
Rural nonfarm	179,371	61,297	50,121	28,988	41,081	128,389
Rural farm	321,019	93,424	104,511	70,214	116,993	295,433
Georgia [1]—by percent		30.8	34.5	19.3	28.4	76.3
Urban		26.6	36.4	15.5	19.8	53.9
Rural nonfarm		35.9	29.4	17.2	24.2	75.6
Rural farm		31.9	35.7	24.4	38.4	97.1
Mississippi	557,246	178,118	266,404	113,745	176,774	452,457
Urban	123,104	41,452	53,652	17,018	27,168	68,958
Rural nonfarm	99,130	36,840	36,372	16,460	29,781	74,190
Rural farm	335,012	99,826	176,379	80,267	119,825	309,309
Mississippi [1]—by percent		33.3	49.8	21.7	33.6	86.0
Urban		34.4	44.6	14.4	23.5	59.6
Rural nonfarm		38.4	37.9	17.5	31.6	78.7
Rural farm		31.3	55.3	25.6	37.9	97.8
North Carolina	820,888	335,063	204,401	138,596	236,999	590,976
Urban	246,060	76,758	72,941	28,109	49,498	112,162
Rural nonfarm	227,681	92,787	43,089	35,906	55,723	161,650
Rural farm	347,147	165,518	88,371	74,581	131,778	317,164
North Carolina [1]—by percent		42.4	25.9	17.8	30.6	76.3
Urban		32.0	30.4	11.9	21.5	38.8
Rural non-farm		42.6	19.8	16.7	25.9	75.2
Rural farm		49.8	26.6	22.8	40.0	96.2
South Carolina	458,899	133,279	180,561	91,973	98,702	343,012
Urban	126,503	33,309	47,567	21,417	18,222	66,390
Rural nonfarm	132,422	35,618	37,935	23,424	24,960	93,771
Rural farm	199,974	64,352	95,059	47,132	55,520	182,843
South Carolina [1]—by percent		30.6	41.5	21.4	22.7	78.8
Urban		27.0	38.5	17.5	15.3	55.7
Rural nonfarm		28.2	30.1	18.8	19.8	74.3
Rural farm		34.7	51.3	25.7	29.3	96.4
Tennessee	742,030	315,182	130,942	135,145	212,321	533,810
Urban	283,649	92,385	79,643	37,222	54,511	137,727
Rural nonfarm	158,037	69,529	16,292	28,782	44,946	118,264
Rural farm	300,344	153,268	35,007	69,141	112,864	277,819
Tennessee [1]—by percent		44.1	18.3	19.1	30.1	75.6
Urban		33.5	28.9	13.6	20.4	51.6
Rural nonfarm		45.7	10.7	19.1	29.8	78.3
Rural farm		53.5	12.2	24.4	39.3	96.6

[1] See source and footnotes, table VII.

much higher degree of home ownership than do the other four States, with farm ownership highest in each State and urban owner-occupancy lowest.

Congested occupancy is at its worst in rural farm homes in each of the seven States. Families average larger than in the cities, and cabins of one, two, and three rooms are common not only among the colored but also among many low-income white families.[3]

Race

No consideration of the housing problem can ignore the racial make-up of the population. The foreign-born form too small a part of the population in the Southeast region to constitute a problem—less than 2 percent. But 46 percent of American Negroes live in the Southeastern States which contain only 14 percent of the national population.

The 7 States of the Southeast region, according to the 1940 Census, had 5,991,160 Negroes out of a population of 18,425,162, or just over 32 percent. Individual States varied, from 17.4 percent in Tennessee to 49.2 in Mississippi. In 1930 the figures for Mississippi had been 50.2 percent. The distribution for the two races between urban and rural is about the same.

The Negro segment of the population of the Southeastern States, largely in the low-income group, occupies a disproportionate amount of the substandard housing. Housing programs in the Southeast, both urban and rural, have largely balanced their construction by providing equal quantities of housing for each race. This has probably created fewer administrative problems than if relative needs were calculated more exactly.

"The Negro in three quarters of a century has made unbelievable progress and has earned in the hard school of social reality a better place than he now holds. He 'rates' better education, better political, economic, and social opportunities. His problem lies at the very heart of the whole region's future development, a reality from which there is no escape * * * He constitutes a large part of the tenant problem. His inequalities of opportunity everywhere strike at the heart of any working democracy."[4]

Housing for War Workers

The housing problems of the Southeast, as of most of the rest of the country, have been greatly aggravated by the dislocations of the war effort. Training centers for the armed forces bring together 30,000 or 40,000 troops, often in rural districts with only 3,000 or 4,000 permanent population. The Government builds the necessary barracks and installs the necessary accessories, including water, sewers, electricity, and telephones. The construction workers first bring congestion to the peaceful countryside. Then follow the troops. They live on the reservation, but they have leisure time and a strong desire for leisure-time amusements. The village soda fountain and movie theatre are swamped. Relatives come to visit and require rooming accommodations. Tourist camps, cafés, and refreshment stands spring up along the roads; rents for rooms or houses mount.

At Charleston, Savannah, Jacksonville, Tampa, Mobile, and Pascagoula there are the shipyards. Elsewhere are the powder plants and all the other developments for the "arsenal of democracy" to which thousands of workers are drawn from a distance. They are often worse off than communities with military and naval posts, because the war industries seldom provide housing for workers. Rents rose fantastically for such

[3] Much more of value and significance is to be found in the State Census bulletins than it has been possible to present in these simplified tables, and they will reward closer study at first hand.

[4] Howard W. Odum, *Southern Regions of the United States*, 1936, pp. 483-85.

few houses or rooms as there were, until checked by governmental control. The increases were greatest at the lowest levels. Old tenants with fixed incomes, retired people, families on relief, suffered cruelly. Real estate interests have been reluctant to accept a governmental housing program; yet it has not been possible, generally, for real estate interests to provide adequate supplies of housing since it is impossible to predict the length of the national emergency.

With active United States participation in the war, plans for expansion of the armed forces and for speeding war production increased many fold the housing problems which had loomed sufficiently large before.

Congressional appropriations have made additional housing possible, but never enough to keep pace with known needs. Another limitation lies in the growing shortage of critical materials. Housing shortages in a number of instances have threatened the production of vital military supplies.

Regional Housing Assets

The Southeastern region is fortunate in having no such inflated land values to deal with as some other parts of the country. (Florida is a partial exception.) Consequently, if the Southeast has more than its share of slums to eliminate, it will cost much less than the average sum to acquire them. As the region has considerably less than average financial resources, this is a favorable condition.

The region has no extensive tenement house problem. A large proportion of its families, perhaps 85 percent, live in single-family houses. Few houses are more than two stories high. Trees are plentiful, flowers abundant. The mild climate favors out-of-door life. Porches are really lived on.

Apartment housing has not developed extensively. Useful for those in the older age groups who want freedom from the responsibilities of housekeeping, for the newly married, for transients and semitransients, apartment dwellings do not offer normal environments for child care. The cost of land does not really make them necessary anywhere, least of all in the South.

Post-War Housing Program

There seems to be general agreement that when the present national emergency ends and there is no further need for all-out production of war materials, there will be acute unemployment unless extensive public works are ready to bridge over the transition to a peace-time economy. Responsible authorities have suggested that public funds as large as 10 billion dollars a year for 5 or 6 years may have to be spent if widespread suffering is to be averted. The total share of the seven States in such a fund might be roughly 7 billion dollars for the period.

It is obvious that if such expenditures are made they should be for undertakings which produce things really needed, which will add to health, efficiency, prosperity, convenience, and comfort. For these purposes, the rebuilding of cities to replace slums with good housing would be extraordinarily suitable. The public benefit to be derived would be vastly greater than was derived from many public works projects during the depression of the 1930's. Continued promotion of soil conservation and forest conservation, schools, roads, all are needed. So too are provisions for public health, whether by draining a malaria-breeding swamp or building a hospital. But no health measure is more effective than building good homes for people who have been living in shelter below minimum standards for health and decency.

The building of houses gives employment to a variety of labor on the site, skilled and unskilled, and also to those who produce brick, lumber, roofing, bathtubs, and other materials and equipment, and to those who transport them.

The amount of employment on the site involved in laying out neighborhoods and building small modern houses is shown in table IX, where the calculations have been made for 65 United States Housing Authority [5] developments, containing 15,537 dwelling units, being all those in the 7 States for which final construction reports had been received up to December 9, 1941.

The amount of off-site employment in manufacturing, distributing and transporting the materials used in a housing project is conservatively estimated at about one-half the man-hours on the site. Exact calculations are not possible.

Experience, especially that of the British after the first World War, shows that a large public housing program has a highly stimulating effect on private

[5] By recent action of the Congress, the Federal Public Housing Authority succeeded to the functions of the United States Housing Authority, but the latter is referred to herein as the effective agency during the report period.

TABLE IX.—*Employment created at site by 65 U. S. Housing Authority developments in 7 Southeastern States*

State	Number of developments	Number of dwelling units	Total man-hours of employment at site	Average man-hours per dwelling unit (nearest whole No.)
Southeast	65	15,537	19,193,165	1,235
Alabama	7	1,925	2,396,341	1,245
Florida	15	3,828	4,113,372	1,075
Georgia	14	3,345	4,108,630	1,228
Mississippi	9	934	1,232,467	1,320
North Carolina	5	1,214	1,439,720	1,186
South Carolina	6	1,039	1,404,170	1,351
Tennessee	9	3,252	4,498,465	1,383

enterprise. The largest program of public building ever undertaken anywhere, resulting between the two wars in nearly a million and a half dwellings publicly built and owned in England, Wales, and Scotland, started the greatest boom in private enterprise construction of small and medium houses that the British Isles had ever experienced. The two together added 50 percent to the number of dwelling units previously existing. As a result the average British working man, in the years preceding the present war, was better off in many respects than the average American working man.

Whatever the public works employed to cushion the future transition from war economy to peace economy may be, the planning must be done in advance.

Urban and rural housing are so different, especially urban and farm housing, that they must be approached in a different way and handled by different techniques. A third factor which has special possibilities in the new Southeast is decentralized industry in a rural setting. Accordingly the treatment below is presented under three heads: (1) urban housing, (2) farm housing; and (3) nonfarm rural housing.

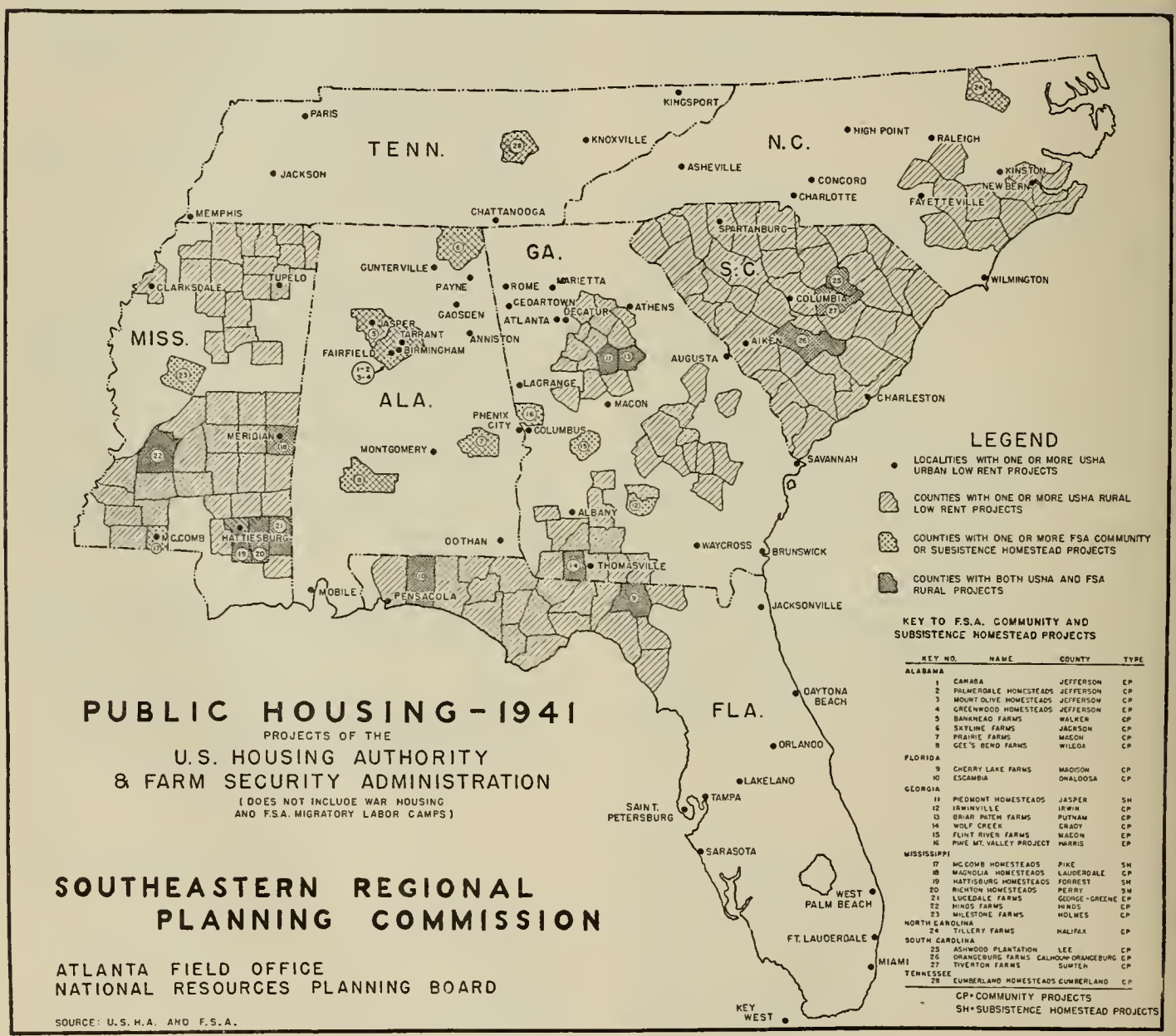

Figure 37

Urban Housing

If the National Emergency Council was justified in implying that half of the 1,645,572 urban homes in these 7 States are substandard, that would be 822,786, far too many to attempt replacing in a 6-year program. The cost would be something like 4 billion dollars. Urban housing is only a little more than a third of the total in these States, and while, as indicated below, it would not be possible to provide farm housing as rapidly as urban, it is also certain that the Southeast would not wish to take anywhere near the total of its Federal assistance for post-war readjustment in the form of new housing. However, not all substandard housing needs replacement. Some can be modernized and repaired. If the Southeastern region in 5 or 6 post-war years were actually to replace 20 percent of its substandard urban homes with modern ones it would experience a physical and spiritual new birth.

There is ample evidence that the region can do this; developments in public housing in these seven States since 1933 are heartening. (See Fig. 37.) This is not so much because there are large new estates showing the presence of wealth, native or imported, nor because there are a large number of new, modern, attractive middle-class homes. What leaves an impression of vital progress are the blocks on city blocks of two-story brick row houses, buried in greenery and flowers, and inhabited by the same white or Negro families who lived formerly in dilapidated frame "shotgun" houses set needlessly close together, in light of the moderate value of the land they occupied. They had no water, no plumbing, no lights, no playgrounds but the streets for the children and nothing for them to play with but ashcans and scattered garbage. The new projects have well-kept lawns, flowers around the doors, crape myrtle and mimosas in the yards; children play in the swings and the spray pools; women work efficiently in modern kitchens; big families are accommodated with enough bedrooms for decency. It is inevitable that these children will be healthier and better citizens than if they had stayed where they were. However, the value of these demonstrations will be lost unless the work goes forward and touches a vastly greater number of people. There are many slum areas remaining.

Population for population and house for house, the Southeast has built twice as much urban public housing as the Nation at large during the past 8 years, not including defense housing. It totals more than 36,000 dwelling units, which is more than 2 percent of the total supply of urban housing existing in the seven Southeast States in 1930, against hardly 1 percent for the Nation. Georgia, which was the first to start, has a 3½ percent showing, and Tennessee, with the next highest rate, has 2½ percent. Since the new housing is not spread out evenly, certain communities have made much greater progress. Atlanta, for instance, had an effective citizens' committee under the chairmanship of the elder Clark Howell when, in 1933, a Housing Division was set up in the Public Works Administration to remove slums and construct new housing for families not served by private enterprise. A number of other cities, mostly in the Northeastern or Central regions had able citizen committees as well, but Atlanta received the first two approved schemes and had the first houses ready for occupancy: Techwood Homes for white tenants, and University Homes for Negro tenants, housing 1,279 families. Since 1937, with loans and grants to the local housing authority from the United States Housing Authority, 3,715 more dwelling units have been built in 8 separate projects, reaching families of lower income levels than the first two. The two building programs fall only 6 units short of 5,000. According to the Real Property Inventory, there were 72,266 dwelling units in Atlanta in 1934, of which the 4,994 replaced would constitute almost 7 percent.

This is a real achievement, but housing authorities in some of the smaller communities have done proportionately more. Columbus, Ga., has rehoused about 8 percent of its families from slums. Montgomery, Ala., has a record nearly as high; it also made an early beginning. In Tennessee, the second highest State, Chattanooga has just over 2 percent, Knoxville 2½ percent, Memphis just under 3 percent, and Nashville 3⅓ percent

Although Mississippi has replaced the smallest percentage of its urban housing during the last 8 years of any of the Southeastern States, it is still a trifle above the national average, and some of its smaller cities have made remarkable progress. Meridian has rehoused nearly 4 percent of its families, Hattiesburg a full 4 percent, Laurel 5 percent, McComb nearly 6 percent, and Biloxi 6¼ percent.

The national emergency has limited the use of critical materials and suspended the supply of additional credit for more USHA housing in the normal slum clearance program. But some, at least, of the defense housing, which during the war period must absorb all energies, should eventually revert to the program. When the United States Housing Authority and the local housing authorities have defense housing assigned to them, and permanent, not temporary, housing is built, it is entirely reasonable that the location be picked, not only for the convenience of the defense workers who are to be its first tenants and must be its first consideration, but also, insofar as possible, for permanent usefulness to the city and its post-war program.

Under existing legislation, special Congressional authorization will be required for the acquisition of any specific project after the war by local housing authorities for use in connection with slum clearance programs. Presumably, such authorization will be granted where local public opinion clearly demands it. The lack of such authorization during the war period, however, places those charged with selecting sites for war housing projects under no obligation to consider one of the factors which, in the public interest, should be carefully weighed. As a result, it is probable that the number of cases in which sites and type of houses are appropriate for such post-war use may be unnecessarily reduced.

In many instances, the best interests of the community would be served if, after the termination of hostilities, war housing developments could be freely acquired from the Federal Government by local housing authorities. If the war industry workers who had occupied them stayed on, the housing could continue to serve them. If they dispersed to their former homes, the projects would provide empty houses ready for families whose unfit houses have been scheduled for demolition. We have been greatly handicapped in this country in our efforts to rehouse the identical families displaced by slum clearance, because our building program had no continuity. Each scheme was a special authorization complete in itself. If a family on the site was to live in the project, it required two movings—at best a serious hardship. But in the process of two movings many families are scattered and lost.

This difficulty has hampered attempts at rehousing families displaced by slum clearance in all parts of the world. Only within the last decade in Great Britain, under the Housing Act of 1930, has a satisfactory technique been evolved by carrying on a continuous program in every community. Permission for clearance of any particular slum area has not been granted since that time by the Minister of Health until the local authority demonstrated that it would have housing finished and ready on some other site for the families from that slum area before the date at which demolition would start. Since that time from 80 to 95 percent of families displaced have been rehoused.

Our public housing experience being much shorter than the British experience, the Nation has been slow to commit itself to a permanent public housing program in the post-war period. However, the Federal Government will presumably have thousands of empty defense dwelling units on its hands, providing an unusual opportunity to make a major step ahead in the slum clearance program and have housing ready for families from the first slums to be cleared after the emergency.

The amount of publicly built defense housing is not yet adequate to supply defense needs, but is still considerable, and is likely to be larger before the end of the emergency. To April 15, 1942, 17,685 permanent dwelling units had been or were being built or planned within the seven States for defense workers or families of Army or Navy enlisted personnel by local housing authorities and the Federal housing agencies under the Federal Public Housing Authority. In addition, 7,383 demountable units are being built, where continued use on the site is considered unlikely, especially in rural or suburban localities.

If all of the 25,068 dwelling units (permanent and demountable) so far authorized were located in urban centers, which is not the case, they would constitute only 1.5 percent of the existing supply of housing there. If it were proposed to use all of it later in connection with post-war slum clearance, that 1.5 percent added to the 2.2 percent of urban housing in the Southeastern States built in the regular public housing program, would only lift the total to 3.7 percent of urban housing. Viewed in connection with the 20 percent which it was proposed above to demolish and replace during the post-war years, that number of accumulated replacements, or even a considerable increase in their number, is modest.

It should be pointed out that in some small centers and rural districts large war industries have been created where housing has to be provided in quantities beyond any local possibility of permanent need. It is for such situations, however, that demountable housing, which can be moved elsewhere after the war, has been devised. But the larger cities, with 40 or 50 percent of substandard housing, have much to gain and little to fear from additional war housing by public agencies, provided it is not dumped onto the market when the war is over.

The recurrent fear of overbuilding, of having too much permanent housing erected for defense workers by public agencies, leaving "ghost towns" after the emergency and disorganizing the local real estate market, is unwarranted in light of the type of housing market which, with wise administration, can absorb defense housing after the war—a type of market which private builders necessarily do not supply. The vast urgency of defense housing makes it evident that government is the only agency which can command the capital or incur the risks of building it *en masse*, or which can protect the community from the danger of "ghost towns." It is evident that many times as much public defense housing could be built as has so far been authorized without upsetting the real estate market *so long as it remained in public ownership* and

was used for the rehousing of families living in slums, which would then be demolished. A good beginning would have been made on the ultimate job, and the real estate market, in the process, would be measureably strengthened. The availability of critical materials, on the other hand, may justifiably limit the total of defense housing which the emergency produces.

If it becomes necessary for the Congress to make available for public works after the emergency anything approaching the amounts predicted, and if slum clearance and public housing are among the alternatives offered, with perhaps some investment of public money in redevelopment of blighted areas whose rebuilding would be carried out by private enterprise, then any Southeastern community which had a program ready, in blueprint form, for eliminating substandard housing and replacing it would be in a highly advantageous position for an early start.

Several cities already have most of the preliminary information needed.

Nashville, for instance, has a "Survey of Low Income Housing Areas" made for the Nashville Housing Authority in 1940 with the assistance of its two universities. It was "undertaken as a guide to the Nashville Housing Authority and to the city of Nashville in planning housing expansion and in eliminating inadequate dwelling units" and is expertly done. It found roughly 40 percent of existing housing substandard. Among substandard units 13,156 (more than 82 percent of total substandard) were occupied by tenants, of whom 6,630 were white families and 6,526 Negroes.

The report contains maps of the city showing, block by block, the proportion of substandard housing from under 20 percent to over 80 percent. One map shows increase or decrease of population 1930–1940 by Census tract. Others show cases of juvenile delinquency per thousand of population, cases of tuberculosis, of infant mortality and of truancy. Each item substandard—bad structural condition, room overcrowding, lack of bathing and toilet facilities, running water or electric light—is plotted on a separate map, as are the number of rooms per dwelling and monthly rent per unit and per room.

In a few weeks' time Nashville could prepare an application with maps and figures for a 6-year program of 2,000 houses a year. It has 600 defense houses, which, if vacant, and authorized by Congress, could be used for the first families moved from slum sites.

Birmingham conducted a "Real Property Inventory" and "Low Income Housing Area Survey" in 1939, results of which are published in a volume of tables and another volume of maps. These give much the same information found in the Nashville study, as well as some that is not shown there. Birmingham had important health and housing studies made by its county health officer in 1935 which are still pertinent.

Knoxville had a "Real Property Inventory" an9 "Low Income Housing Area Survey" made in 193d There are several others.

British cities show entirely favorable results from much more extensive public housing than has been attempted in America. Manchester and Glasgow, before the present war, were landlords to about 17 percent of their families, and Liverpool to more than 22 percent. All had a 5- to 10-year program ahead which would have substantially increased the amount. In all of these cities private enterprise was building vigorously for the next higher income strata.

Farm Housing

A program for rural housing cannot be treated without reference to the current and future conditions of farming in the Southeast. The farm home is so completely a part of farm work and farm economy that it cannot be considered as a thing apart. It is a portion of the plant, as truly as the barn or the poultry house. The whole family cooperates in the business enterprise of farming. Especially in the Southeast, cash farm incomes are meager. When the occasional good year comes, savings must often go to improve barns, fences, machinery, and the house has to wait.

That is the owner. The tenant is much worse off, and there are more tenant farmers than owners in the Southeast. On the poorer farm the landlord apparently can make few repairs or improvements on the tenant houses, nor can the tenant. In his frequent movement from farm to farm, the tenant seldom finds more adequate housing. About a third move every year.

As shown in table II, it is rare for any Southeastern farmer (outside of Florida) to have running water, flush toilet, bathtub, or electric lighting in his home. In the case of a tenant farmer or sharecropper, it is almost unknown. The story of rural housing in the Southeast is a familiar one. Many thousands of families live in unpainted shacks in an advanced stage of dilapidation, with daylight visible through walls, roof, and floor. Water is drawn from a shallow, often polluted well or carried from the nearest "branch." Privies are usually open to flies and animals and frequently afford no semblance of privacy. About a fifth of the families are without privies. The cabins usually contain either two or three rooms, occasionally one or four. The families living in them are often extremely large. In some areas, the windows are without glass; solid wooden shutters are closed to keep out rain or cold.

There were 773,956 tenant farmers and sharecroppers in 1940 in the seven Southeastern States, of whom

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420,688 were white and 353,268 were Negro. As in other cases, Florida was an exception, with only about a fourth of her farmers tenants. Tennessee and North Carolina had less than half. Alabama had nearly two-thirds tenant farmers, Mississippi had nearly three-fourths, while Georgia and South Carolina came between these two.

The consensus of expert opinion seems to be that, for a number of reasons, the Southeast will have to break away from its exclusive devotion to cotton as a single cash crop. Its exhausted soil must be restored by crop rotation and cover crops ploughed under. Dairying and cattle raising must be increased and improved for the dual purpose of soil recovery and better nourishment for the farm families themselves. Striking progress has been made in these directions since 1930.

The health of the population requires a varied diet which the bulk of them have never had. The growing of fruits and vegetables in farm gardens and their canning for winter use has increased in recent years and greatly reduced the incidence of pellagra and other deficiency diseases. The county home demonstration agents and the home economics departments in the schools deserve great credit for this. County health officers, following the demonstrations made by the Rockefeller Foundation, have done a fine work in popularizing protected wells and sanitary privies, thereby reducing typhoid and the anemia due to hookworm.

The trend away from cotton in the Southeast has been hastened by the boll-weevil, the production control program, and also by successful competition from the Southwest and from abroad. Undoubtedly cotton will always be an important product of the Southeast but its relative and absolute importance are on the wane. The same to a less degree is true of tobacco.

In many respects the situation in our Southeast recalls that in Denmark three-quarters of a century ago. Denmark had been a country of large estates growing wheat for export to Germany. The peasantry was poor, landless, and uneducated. The soil was exhausted from constant use. No amount of commercial fertilizer could whip it into effective productivity. Grain was coming overseas from the prairies of America to compete. The market was disappearing. A wise Government bought out the bankrupt landowners, not at lavish prices, but with bonds assuring them a decent competence. The land was split into small farms and sold to the peasants on liberal credit terms. While some of those farms are still being paid for, most were free of debt long ago. The new farmers were aided in acquiring blooded cattle and going into dairy farming. Hogs and poultry were added. The nearby British market for butter, bacon, and eggs was studied, carefully catered to, and eventually secured. Under the inspiring leadership of Bishop Grundvig, universal education was carried to the people, so that before long the Danes had reduced illiteracy to a fraction of 1 percent and led all other nations in that respect. At the same time, although her farmer population were just as rugged individualists as any other farmer population, they developed cooperative creameries and cooperative marketing because it was so clearly in their own interest to keep the largest possible share of the value of products in their own hands. While there are no very wealthy people in Denmark, there is practically no poverty. Until the Nazi shadow fell across them, they were, perhaps, the freest people in the world. Certainly they had come the nearest to the achievement of a working democracy.

That sort of future is undoubtedly within the grasp of the Southeastern States and of their farming population. Current trends indicate that a rural-housing program for the Southeast should and safely can expedite and adapt itself to that type of agricultural future.

Farm tenants should, generally speaking, become farm owners. The Bankhead-Jones Farm Tenant Act is helping them to do so, and the Farm Security Administration and other action agencies of the State and Federal Governments are giving expert advice on location and acreage, soil and crops. It only began in 1937 and is projected on a small scale compared with the need. But a beginning has been made. During the first 4 years (to June 30, 1941) 20,748 tenant farmers throughout the Nation were given loans at 3 percent to buy and equip farms. Of these 9,422 were in the 7 Southeastern States, all of which except Florida participated more actively than States elsewhere in the Nation. In some cases a farmhouse had to be built, in others it was repaired. In some cases an existing house was adequate.

FSA also makes loans for building or repair of the farmhouse to small farm owners.

The number of farm homes, either built or repaired with the help of FSA loans, to June 30, 1941, may be summarized as follows:

State:	*Number of units*
Alabama	3,289
Florida	646
Georgia	2,863
Mississippi	2,650
North Carolina	1,309
South Carolina	1,682
Tennessee	1,183
Total	13,622

It requires special conditions of soil, crop, intensive cultivation, and market for a farm family to make an

adequate living out of less than 100 acres. Yet more than 80 percent of the farms in the Southeast contain less than that. In the judgment of experts, on the other hand, a subsistence homestead, on which a family proposes to raise its own food and pasture a cow or a goat, should not be more than about 20 acres if a man who is going to earn his cash income in industry is to take care of it in his unemployed time, nor should it be less than 4 acres if the family is to be adequately nourished.

The breaking up of the old plantations into small farms has, therefore, sometimes gone too far, and families have tried to make a living from tracts too small to support them. This has generally led to the practice of planting cash crops to the exclusion of health-giving vegetables.

The United States Housing Authority also builds farmhouses, but is not permitted under its statute to sell them. It cooperates with county housing authorities, where they have been established, and with the Farm Security Administration.

Lee County Development

Lee County, in northeast Mississippi, has a housing authority of this type, established in October 1939. It is a county of small and medium-size farms and predominantly white population. From 60 to 70 percent of its rural housing is understood to be substandard. What it has done has been pioneering of an interesting type, necessarily slow, but apparently sound. In April 1940 it built a demonstration house, and with that as a sample, received and carefully sifted applications for more. In this, as later, the cooperation of the Farm Security Administration was all-important.

Applicants, white or colored, could be either owners or tenants. Their farms had to be passed on as well as themselves. Houses were not built on farms which offered no hope of a livelihood. The farms of accepted applicants run in size from 50 to 100 acres. A 1-acre site for the farm home has to be deeded free of charge to the county housing authority, which then builds the house and rents it to the farmer at about $5 per month or $60 per year. The system is contrary to the traditions of farmers in the Southeast and elsewhere. The first reaction is often unfavorable. However the houses are such an inducement that in Lee County, at least, the first reaction has been overcome, and applications are more numerous than can be taken care of.

In the summer of 1941, 26 brick veneer houses had been completed and occupied, 23 frame houses were finished and in process of occupation, 15 were under construction and bids were being advertised for 15 more. Eligible applicants totaled 148. There are more farm owners than tenants among them, more white families than Negro, but all are represented.

This approach to rural housing could, perhaps, never make rapid progress. It precludes mass production methods and lacks the speed and economy of community building. The sites are scattered throughout Lee County. They are good houses, sturdily built, with two bedrooms, living room, kitchen, a large screened work porch at the back and small unscreened porch in front. A small room, now used as a storeroom, is included in the plan, which can be converted into a bathroom when funds permit. A deep well is drilled for each house and fitted with a sealed hand pump. There is a sanitary toilet built in accordance with the State Board of Health requirements. A space heater is installed in the living room and a sink and cupboards in the kitchen.

Some housing specialists feel that this involves an unwise surrender of standards. There is a good deal to be said on both sides. Where the distance to go is very great, it may be just as well to take two steps instead of one. In any case the resultant economies have released funds for a larger number of dwellings than higher unit costs would have permitted.

The accomplishments of the Lee County Housing Authority have stirred 10 neighbor counties to organize housing authorities. They have joined with Lee County in setting up a common staff at Tupelo, and have secured loans which will permit the building altogether of 350 houses. It remains to be seen whether the practical efficiency shown in Lee County can be successfully spread so far.

The Farm Security Administration continues to keep a Farm Management Specialist and a Home Management Specialist of its staff constantly in the field to advise the USHA farmers and their wives. Thus, there are farm animals around the houses, truck gardens and fruit trees, contour plowing, cover crops, and careful management of timber land. Cotton and corn are still there, but not to the exclusion of other crops. Each house has shelves of the vegetables and fruits and tomato juice canned for winter use. Farm women are learning the principles of nutrition and are feeding their families balanced diets. School busses gather up the children and take them to the consolidated schools.

The Lee County experience represents one approach to farm housing. The same formula is being tried in southwestern Georgia by a group of counties centered around Thomasville, and a similar experiment has been initiated in South Carolina. (See Fig. 37.)

It is possible that if this type of housing seems inclined to spread, and if tenancy proves a continuing obstacle, it might be possible to secure an amendment of the

United States Housing Act to permit county housing authorities to sell the farm homes they build to the farmers who live in them.

It remains to consider another approach to farm housing which is being conducted by FSA for certain farm communities. Some of these operations were inherited by FSA from a variety of predecessors; not all of them represent undertakings likely to be repeated. Because they are farming communities, they offer certain possibilities, however, which the scattered farms and houses do not. There are 44 such homestead projects in the 7 States, and on them live 3,634 farm families.

Gee's Bend Demonstration

There is a place on a back road in Alabama called Gee's Bend, which is extremely significant; although some technicians might not consider it a particularly model demonstration, its roots are deep in the ground, and its people are conscious of a real sense of achievement.

There are 97 Negro families living at Gee's Bend, descendents of the slaves on the 10,000-acre Pettway plantation, now owned by the Farm Security Administration. It is said that their forebears were brought directly from Africa, and that some of the old folks among themselves still speak an African language. Certainly they have clung to the only soil they knew with remarkable tenacity. They are cut off from the rest of the world by the meandering Alabama River, which almost makes islanders of them in one of its deep loops. The county seat is only 3 miles away as the crow flies, but it takes a 40-mile drive over a rough dirt road to call there. Since the turn of the century, when the last resident Pettway died, they have been more or less on their own. They raised cotton, as they had always done, and when they sold it, paid off their debts to the "furnisher" at the nearest village. When cotton prices were high, they bought a mule. When prices dropped, they fell behind. The depression and 5-cent cotton brought ruin. In 1931, their furnisher died, after carrying them for three years without a settlement. His administrators found it necessary to levy on everything portable the people had—mules, cows, hogs, poultry, ploughs, and farm tools—which left them destitute. The absentee owner did not dispossess them. But they would have starved during the winter of 1932 if the Red Cross had not sent corn meal and meat and flour to them. Then the tide turned, slowly at first. There was some State relief and some work for the men on State roads, and finally the Federal Government took a hand. The new settlement that has replaced the old dilapidated structures has been almost entirely built by the people themselves from lumber cut from their own woods. "Only the nails had to be bought," is the way they put it. They built the stables first because of the preciousness of mules and cows. But they have now also built new houses for themselves, simple, but substantial and good, 3, 4, and 5 rooms with a screened work porch and screens for doors and windows. Each has a drilled well and a sanitary privy. They have a cooperative gin and grist mill and blacksmith shop, a flourishing cooperative store, and own ploughing and haying machinery cooperatively. This is one of the places where cooperation seems to come natural to people who have always helped each other and who are all blood relations.

They have a community center around which their life circles. It has a church and a home for the pastor. It has a health clinic, where the resident nurse lives and the doctor comes twice a week. The nurse has been of the greatest assistance in improving community health. Pellagra and malaria have almost disappeared. Tuberculosis and venereal disease are decreasing. Women get proper care before, during and after childbirth. The children have improved most of all. Finally, there is the school, a 6-room grade school, bright with fresh paint, the obvious pride of the community. It specializes in vocational training and home economics. When the school opened, more than half the registration was in the first grade, though the ages of the first graders ran up to 18 years.

One of the most striking things in the community is the historical monument the people have erected on the village green in front of the new schoolhouse. It is the one-room, windowless log cabin which was the old schoolhouse. They have repaired it with care and surrounded it by a white picket fence, to stand as a reminder to every child on his way to and from school how many advantages he has that were denied to his parents and his grandparents. And grown-ups passing that way, catching the two schools in their line of vision, are reminded that they have lived to see this progress, helped with their own labor to create it.

The Farm Security Administration has finer farm communities. Many of them have the bathtubs and flush toilets and hot and cold water which may eventually be in every farmhouse. Some have more complete health, educational, and recreational services. The demonstration at Gee's Bend, however, reveals the potentialities latent in American democracy.

Nonfarm Rural Housing

This Census classification includes suburban homes of people working in urban centers. It covers villages of less than 2,500 population. It also applies to the dwellings of families scattered through agricultural country who do farm labor or industrial work, or alter-

nate between the two. For this considerable class the availability of some form of industrial employment during part of the year is a necessity, farm labor being both seasonal and poorly paid. Under these circumstances, ownership of a home and a plot of land on which most of the family food can be raised spells security. This is the place for the subsistence homestead. Such a holding must not be expected to produce food to sell, but only for home consumption. It must not be too large for the wife and children to tend while the husband is at work in the factory, store, or mine. If it produces vegetables and fruit and poultry and eggs and milk and pork for the family table, it adds greatly to the family standard of living in good times and is a refuge when unemployment occurs.

The Southeast as a whole is in transition between an agrarian economy and an economy with some sort of balance between industry and agriculture, with a real danger of excess urbanization and excess industrialization. Measures of employment security for the masses of industrial workers have recently been established. In security against more serious risks, sickness and invalidity, progress has been limited. However, the Nation has made a beginning in providing for limited periods of involuntary unemployment, for retirement in old age, and for aid to dependent children, the blind and other special classes. Much remains to be done.

The age of the steam engine necessarily concentrated factories in cities, not too far from coal supply, and favored the continuous growth of those cities. They grew so rapidly that they accumulated tens of thousands of houses, built for the factory workers, too small, dark, damp, and crowded together, before becoming aware of the health hazards being created. Substitution of electricity for steam has changed the conditions under which industry works. The transmittibility of electric current makes possible a wide decentralization of industry. The development of vast electric power in the Tennessee Valley and its tributaries has put the Southeast in a particularly favorable position in this respect. Its situation is analogous to that of the Scandinavian countries a short time ago, especially Norway which, having been late in starting industrialization, was able very nearly to begin at the electric power stage and avoid an enormous amount of smoke, grime, and slums.

Forty-odd years ago, Ebenezer Howard wrote his *Garden Cities of Tomorrow* to show how country life and city life each had deep-seated advantages and deep-seated defects, but that it was well within the power of men to build new communities, planned from the start for industry and healthful living, which would combine the good points and avoid the bad points of both. There was to be no speculation in land, and therefore no private ownership of land. People could build their own homes on land leased for 99 years. Everybody was to have ample light, air, and garden space. The number of families per acre was limited. Playgrounds and recreation areas, parks and woodlands were reserved from the start. Industries—a variety of them—were to be invited to settle, but they also must put their factories on rented land. In Howard's idea the garden city should never be allowed to grow too large for people to walk to work. The limit of 30,000 population was set for Letchworth, the first garden city on the Howard pattern, and 40,000 for Welwyn, the second. Both towns are green and lovely, very prosperous and uniquely healthy. Before the present war, while England and Wales had a general death rate of 12 per 1,000 inhabitants, that of Letchworth was 8 and Welwyn 5.9. Infant mortality was 62 per 1,000 live births in England and Wales, 33.6 in Letchworth and 25 at Welwyn. Both are industrial towns with workers at all wage levels. Letchworth has 60 distinct industries and Welwyn almost as many.

Our American community planners have added some features, such as Radburn's super block, particularly adapted to American traffic conditions. The Greenbelt towns of the Resettlement Administration are good examples of lay-out. Within the Southeast region the town of Norris, Tennessee, shows highly intelligent use of a naturally attractive site.

On a smaller scale, some of the farmstead communities of the Farm Security Administration, which have brought industry within reach of their members, are a laboratory experiment in decentalized industry and combined town and country life, not too far from the Ebenezer Howard model.

The Southeastern Region, with its abundant electric power, its climate, soil, rainfall, its comparatively cheap land, its people, white and Negro, with predominantly rural background and a considerable experience in tilling the soil, is preeminently fitted for carrying out such experiments.

If something such as the garden city is to be the industrial and living pattern of the future, and if overgrown cities will sooner or later pass, it will be easier for such a region as the Southeast to swing into step than for regions where the metropolis is now dominant.

Home Ownership and Financing

A final consideration relevant to the formulation of a post-war housing program for the Southeast relates to problems of home ownership and the financing of home ownership. Home ownership is an American tradition

and derives from a deep-rooted American instinct and aspiration. It gives a sense of security (when unaccompanied by debt) and it adds to the sense of personal dignity.

That is true for the farmer. It is true for the nonfarm rural family. It is not, however, necessarily true for the city dweller.

Home ownership reduces the mobility of the owner. For many modern occupations, mobility is essential. A house which cannot be disposed of may anchor a man to an unsatisfactory job. While in times of unemployment the worker can raise the family food supply around the rural home, this is not the case in the city. City taxes are a much heavier expense than rural taxes. If an urban worker who is a tenant is unemployed, he can move into smaller and cheaper quarters and save part of his rent. But the worker who has put all his savings into the partial purchase of a house must deprive his family of necessities to preserve the investment. If the investment must be sacrificed, the worker is left with nothing to show for his efforts, and the effect upon family morale is profound. Multiply the experience and the effect on society is dangerous.

Other factors limiting the desirability of complete urban home ownership are related to matters of income and costs. Home ownership in the city costs more than in the country. Land costs, building code requirements and tax requirements make it so. If in the Nation as a whole, urban home ownership is potentially safe for the highest economic third, it is probable that for Southeastern cities the boundaries should be shifted upward. Perhaps it would be safe for the top quarter, precarious for the second quarter, and impossible for the lower half.

One chief danger lies in the lack of business experience on the part of most boundary-line home purchasers. Few people buy homes often enough to learn how, and usually it is done only once. If the home is kept, the owners spend most of their working life paying for it. If the home is lost the owners have lost the savings of years and are too discouraged to try again.

The Federal Housing Administration has performed a useful service in improving the mortgage structure and sifting the families for whom it is willing to insure mortgages. Those who are not considered good risks are excluded. But that is not the same thing as "those for whom the risk is not good." FHA is a mortgage insurance agency, whose duty is to protect mortgage lenders from loss and the Government from more than the calculated loss covered by premium. Within those limits, however, the foreclosures which occur are no less catastrophic to the families suffering them than if these protections did not exist.

The fact is that, although there has been general belief that government housing agencies have been too numerous, Federal housing legislation fails to provide authority for one service which is widely found in other countries and which has played an important part in making home ownership possible and safe for sections of the population which could not have achieved it otherwise.

The classic example is the Belgian Housing Act of 1889, under which the General Savings Bank has made loans at low interest to nonprofit provincial lending companies organized for the purpose, which in turn lend 80 percent of the purchase price of a home on first mortgage security, with 20-year amortization, to working-class or other low-income purchasers approved by a local *comité de patronage*, a committee of representative citizens, officially appointed and serving without remuneration, who look into the character and prospects of the purchaser, the quality and price of the home and the wisdom of the undertaking from his point of view. The top limits of eligible income, varying with the size of the commune (large city, small town or rural) and with the number of dependents in the family, is set from time to time by royal decree. The life of the head of the family is insured for the duration of the mortgage so as to cover the unpaid balance should he die before payments are completed and to assure the family a home unburdened by debt. During 50 years of operation, 243,800 Belgian workers acquired homes under its terms. In proportion to population, that would be equal to about 4 million in the United States. And during that period there have been only 2,712 foreclosures, or just over 1 percent.[6] In 5 years of FHA experience under Title II of its act with a much higher income range of purchasers, out of 634,023 small homes, financed, 3,547 have been foreclosed, just over one-half of 1 percent (0.56 percent).[7]

Until something of the sort can be incorporated into national housing legislation (and it is to be noted that it is a self-sustaining, though not a profit-making service), American housing will be handicapped by the existence of a no-man's land, sometimes, though not always accurately, described as the middle economic third, who have too high incomes for subsidized public housing and not high enough to secure adequate homes through private enterprise operating for profit. Until a better way is provided for this large group, private builders and FHA will make strenuous efforts to reach them and the casualty rate will continue to be high.[8]

[6] Compte Rendu, *Caisse Générale d'Épargne et de Retraite*, Année 1938, pp. 62, 65.

[7] *Seventh Annual Report of the Federal Housing Administration*, Dec. 31, 1940, p. 57. There is an additional class of mortgages "seriously delinquent" with "foreclosure imminent or started," 1906 in number, adding another ½ of 1 percent. The two groups together reached .89 of 1 percent.

[8] When an American law of this kind is enacted, it will probably differ from the Belgian Act in several particulars. The New Zealand Act of 1906, for instance makes the loans from Government, special housing bonds being issued to cover them. Only a 10 percent initial payment is required, and the time may be as much as 30 years if the borrower is young enough.

RECOMMENDATIONS

The prospect of a period of post-war adjustment during which extensive public works will be undertaken with assistance from the Federal Government to cushion the transition to peace-time economy creates an opportunity for the achievement of important civic progress, provided a wise choice of undertakings is made and competent plans are prepared in advance for carrying them out.

Large-scale slum clearance and replacement by public housing authorities in urban centers and improvement in farm and other rural housing suggest themselves in all parts of the Nation as offering maximum lasting results in health and social benefit, with maximum immediate employment of varied types of labor.

This is preeminently true in the Southeastern region. It is true because the region has the largest proportionate mass of substandard housing of any section of the country. Such an opportunity for mass replacement may never recur.

Still more important is the fact already noted that the Southeastern region has made more progress during the past 8 years than any other section of the country in grappling with the problem of urban slums. The members of its local housing authorities, serving without remuneration, have been accumulating a stock of knowledge and experience, technical, social, economic, and administrative, which would make possible the sudden expansion of public housing activity suggested and give good reason to predict its success. If it were not already available, this experience could not be improvised.

1. The local Housing Authority of each Southeastern urban community which has one, together with the local planning commission where established, should begin the assembling of data for a long-range program of clearing slums, replanning and rebuilding the community, determining the order in which different parts of the plan could best be executed, locations best adapted to homes of various types, the slum areas which should be cleared, the areas of incipient blight which can be redeemed. The material available in the 1940 Housing Census provides a solid starting point. At every stage in the work the public should be thoroughly informed. Either formally or informally, the plan should be submitted and adopted. In the absence of a local Housing Authority, or Planning Commission, the initiative might well be taken by the Mayor, the City Council, the Defense Council, business and civic groups, the press. In any event, the active interest of all these groups should be united behind the plan. State planning boards can in many instances provide technical advice where needed. Colleges, universities and research institutes are in a position to conduct certain studies. Health and education authorities should be drawn in actively. With at least 40 percent of 1,645,572 urban houses substandard in the seven States, it would be reasonable to plan to replace 20 percent, or 329,114 in a 5- or 6-year post-war program. The total estimated cost of acquiring and demolishing the slum dwellings, building new houses, installing necessary utilities, landscaping, providing playgrounds, community rooms and health centers represents at an average of $5,000 per unit, a total investment of $1,645,570,000. Such a program can be executed through the administrative mechanism under which the USHA (now the FPHA) has operated in collaboration with local Housing Authorities.

2. With at least 65 percent of 1,893,572 farm homes in the seven States substandard, it would be reasonable to plan to replace 50,000 in a 5- or 6-year post-war program. Exclusive of the cost of land or livestock, this would involve an investment of $100,000,000. Such a program can be executed under existing legislation by the Farm Security Administration, county housing authorities, and the United States Housing Authority.

3. Of the total of substandard farm homes, 50,000 selected from those least unsound structurally, taking advantage of rapidly extending rural electrification, should be modernized and repaired. Owners could do much of the work themselves. These homes can be brought up to standard at a total cost of $25,000,000 to the farmers with assistance of agricultural loan agencies.

4. Of 1,135,385 nonfarm rural houses in the 7 States, 567,692, or half, are substandard. It would be reasonable to plan to replace 50,000 of lthese in a 5- or 6-year post-war program. The program can be executed under existing legislation by county housing authorities and the United States Housing Authority (FPHA) with the assistance of the Farm Security Administration with an investment, including an acre of land per house, of $125,000,000.

5. For the post-war public works program, the Southeast could well include an industrial garden city in each of the 7 States. Each should have a variety of industries selected to dovetail with each other, on the pattern of those of Letchworth and Welwyn, and with agriculture, in a seasonal sense. They should also furnish variety as between light and heavy goods, skilled and unskilled labor, suited to men, or to women, or to youth just out of school. It would be difficult to secure capital for early experiments from any

source except the Federal Government, though selected demonstrations might well set a pattern for decentralized industries and test the safety of a new investment outlet for private capital. A demonstration garden city in each of the 7 Southeastern States, depending on the scale of the demonstration, would involve a total investment not likely to be less than $100,000,000.

6. Nearly 30 percent of the national-defense housing so far being constructed by public agencies in the Southeast region is either of the demountable or the nonpermanent variety, selected in the belief that the need for it will end with the emergency. It is intended to substitute the demountable units for worn-out farmhouses in the surrounding country after the emergency is over. It is possible, however, that certain of the industrial plants in rural areas may prove convertible to peacetime uses. Very large expenditures are being made in bringing water, sewers, gas, and electricity to these centers. Schools are being built, shopping centers and recreation facilities provided. It would be in the interest of economy, wherever possible, to convert such communities into permanent industrial garden cities, even though the lay-out might not be as ideal as if originally planned for the purpose.

Studies of methods for operating such a program in specific cases might be appropriately made by State planning boards.

7. The continuation of the mortgage insurance program for new private housing construction under the Federal Housing Administration into the post-war period is important to the development of a balanced program.

As has been noted, there is an unsupplied home-owners market between low-income groups requiring subsidized housing and upper economic groups in a position to avail themselves of FHA mortgage insurance or to finance their homes individually. In order that this market be opened, and technique in supplying it developed, present national legislation on housing should be supplemented with a home-owners aid measure, along lines of the Belgian and New Zealand acts, providing for long-term low-interest financing to carefully selected low-income purchasers.

The Southeast has demonstrated that it can make its agriculture prosperous again, a prosperity spread among many small farmers. If in its new industrialization it resists the temptation to build metropolises and skyscrapers, it may achieve quality rather than quantity in its urban life. At the close of the national emergency, it may likely have the chance (though the opportunity may never recur) to remove its accumulated slums on an unprecedented scale and build in their place the kind of homes in which to raise children who will grow into citizens of whom it can rightly be proud. If it has such a program under way, even in a preliminary fashion, the Southeastern region will be able to take advantage of any Federal public works assistance available during the re-adjustment period after the war and offer the Nation an example of rational, healthful, urban-rural living in electrified industrial garden cities.

RECREATIONAL DEVELOPMENT[1]

Natural Resources

Any planning for recreation must start with the fact that 68.1 percent of the region's people live in rural areas. This means that public recreation opportunities are frequently most needed by the people least able to support them. With nearly one-third of the population Negro, there is the further necessity of supporting adequate recreational facilities for one of the lowest income classes in the region.

Topography

While the adequacy of the Southeast's recreational services must, in the end, depend upon the region's general prosperity and ability to support those services, the region has certain natural and cultural advantages in its climate, scenic mountains, and 2,000 miles of coast line. The region's winters are mild, and snowfall, except in the mountains, is relatively infrequent. While summer temperatures are high in the lowlands, averages ranging from 70° in the northern part to 80° and above in southern Georgia, Alabama, Mississippi, and all of Florida, highland sections are pleasant and seashores enjoyable throughout the hottest days. Only one region in the country (the Southwest) has more days of sunshine during fall, winter, and spring.

The climate's productive forces will, if given a chance, restore many of the region's recreational resources that have been largely destroyed by man's careless use of the land. It will grow cover to heal ugly erosion scars in an incredibly short space of time, thereby adding to the charm of the countryside and at the same time clearing up streams once beautiful and recreationally useful but now muddy with silt. This clearing up of streams, coupled with an effective program of stream-pollution control, can bring water sports within reach of practically every citizen in the region, for there is no community without its stream that was once a fisherman's paradise and picnic grounds with swimming hole for neighborhood gatherings.

The region's scenery includes rugged, tree-covered mountains, rolling hill country, flat lands, junglelike swamps, and ocean beaches, but to date little has been made of this important asset. Many of the most scenic areas are still in private ownership and hence subject to impairment or total destruction. Few good highways provide access to these wonderlands and, in most cases, utilitarian rather than esthetic motives have governed their location and construction. Nor are they protected against commercial despoliation since none of the Southeastern States has adequate zoning legislation. Only a relatively few miles of the 2,000 miles of coast line are skirted by an ocean drive and these few miles are unprotected against exploitation by private and often shoddy commercial developments.

Historic Sites

No region is more richly endowed with historic and archeologic significance, yet not nearly enough is being done by State and local governments to preserve and make this legacy available for public inspiration and enjoyment. According to authorities, no section of what is now the United States was so heavily populated as the Southeast by natives during the pre-Columbian period. Early journals, such as the records relating to the DeSoto Expedition, give some indication of the various cultures and activities of the aborigines. Such important sites as that of Mavila, located some place in Alabama, and one of the more important sites connected with the DeSoto Expedition, are still not known today. This is but an instance of the need for a detailed study in this section of both the native races and of first contacts with them by white people.

Florida, in particular, has a most interesting background of Spanish occupation; yet few, if any, sites have been set aside for preservation, interpretation, and development other than Fort Marion (Castillo de San Marcos), Forts Clinch and Matanzas at St. Augustine. Sites and physical remains relating to the pioneer history of the Southeast have been all but forforgotten. There are virtually no areas in public ownership which are calculated to preserve remains and sites of this vital period in the settlement and history of the region.

What is said in general about pioneer history in the Southeast can also be said of subsequent periods, particularly of the plantation period. To be sure, physical remains of this period still exist in some of the cities and towns, such as Natchez, Miss., Rome, Ga., Charleston, S. C., and Savannah, Ga., but even here, every year brings destruction and demolition, with the result that each new year leaves the region fewer physical remains of a once rich and glorious period of history. Away from the towns, virtually nothing has been done to preserve evidences of the social and cultural life of

[1] Prepared by the staff of the Region One Headquarters Office, National Park Service, U. S. Department of Interior, Richmond, Va.

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the Old South. Plantation houses are torn down, removed, or allowed to disintegrate through the ravages of time.

Only the sites associated with the "War between the States" have received attention, a few of them having been acquired for public ownership, preservation, and development. Much of this program has been sponsored and carried out by the Federal Government.

The State governments and their subdivisions in the South, with few exceptions, have not developed programs for conserving sites calculated to preserve the history and cultural conditions of the region. This is unfortunate in view of the growing public interest in historic buildings and sites. Preservation of these structures and places deserves a place in any comprehensive State conservation program.

Administrative Problems

The region's climate, scenery, historical associations, and abundant water resources endow it with exceptional vacation potentialities which are as yet largely unrealized. Florida and more recently the Southern Highlands have recognized these potentialities, but systematic planning for a more complete utilization of resources requires even more emphasis and better implementation. Adequate zoning legislation and administration and soundly conceived long-range development plans are needed to insure against impairment or destruction of resources through commercial exploitation. Research and planning activities of the Tennessee Valley Authority along the Tennessee and Cumberland Rivers may be cited as an example of the kind of action needed in the rest of the Southern Highlands region as well as along the Gulf and Atlantic coasts and in the whole of the Florida peninsula, including the Keys.

While the growth of public recreation in the Southeast has been encouraging during the last few years, no single State or minor civil division yet has a system of areas and facilities that meets minimum population requirements. Inadequate finances, lack of qualified personnel, and deficiencies in administrative organizations are major obstacles to satisfactory progress. In 1940, less than a million and a half dollars was spent on public recreation by Southeastern States and their minor civil divisions, but during this same period, the cost of Government in this section approached the half-billion mark. In other words, public recreation received no more than three mills out of each dollar spent for governmental services.

Park and recreation personnel have been drawn almost entirely from other walks of life, lack necessary specialized training and experience, and have been selected more often than not on the basis of political affiliations rather than on merit. Even where merit has been given first consideration, low pay, insecurity of employment, and lack of basic training opportunities have made it difficult for recreational agencies to obtain qualified people.

Deficiencies in administration may be attributed to a number of causes. The fact that recreation constitutes a relatively new type of public service in the Southeast undoubtedly has led, in a number of instances, to its being made a secondary responsibility of some established agency in the field of forestry, welfare or education. In many cases such an arrangement has resulted in neglect and financial starvation, especially during periods of retrenchment. There are notable exceptions, however, where a strong forestry agency is administering parks and recreation in a very able manner, and this arrangement may be preferable in some of the poorer and less populous States. In many instances where recreation has been established as a separate department, the legal safeguards necessary to insure continuity of policies and programs are lacking. Efficient administration cannot be expected when there is a complete turnover in personnel with every change of political fortunes. And finally, sound administrative standards, policies and practices result from experience. Time is needed to provide this experience for most of the public park and recreation systems of the Southeast.

In summary then, the following problems appear to warrant primary consideration in general planning for a recreation program for the Southeast:

1. The financing of adequate recreational area systems and programs in view of economic conditions in a majority of the States and their minor civil divisions.

2. The integration of recreation as a public service with education through the use of school buildings and grounds, and the establishment of community recreation areas in conjunction with consolidated school plants as the most feasible and economic means of bringing recreation to a scattered rural-farm population.

3. The strengthening of State and local park and recreation agencies through more adequate legislation, administrative organizations, personnel and funds.

4. The training of personnel for park management and leadership through the establishment of courses in recreation planning and landscape management in a limited number of universities equipped to handle them.

5. The planning of more extensive vacation opportunities in the highland sections and along

the seacoast of the Atlantic and the Gulf to serve both residents and visitors.

6. The provision of more pleasant travelways, particularly through scenic areas and between important recreational sections of the region.

7. The restoration of the region's network of streams to recreational use through abatement of silting and stream pollution.

8. The conserving of lands which have high recreational value because of their scenic, scientific, historical and recreational resources.

9. The coordination of recreational planning with general land-use planning which must become the basis of a reorganization of the region's economy.

10. The coordination of recreational problems involving interstate planning and action.

Local Recreation

In spite of automobiles, movies and other outside attractions, studies made before the defense rationing period reveal that the average individual spends the bulk of his leisure time at home. His immediate neighborhood is next in importance, followed by the community, whether it be rural or urban. How far he goes beyond community boundaries seeking recreation depends on his inclinations, economic ability to travel and the spare time he has on his hands. For a vast majority, these factors limit outings away from the home community to a relatively few each year taken on holidays and weekends and during vacations. A substantial group, having no means of travel, are confined to community environs for all of their recreation. In the Southeastern States, this group comprises at least a fourth of the population and may be as high as a third. Thus it is apparent that the most pressing need for public recreation falls within the community sphere of responsibility.

A study of municipal recreation in the Southeast reveals a wide gap between needs and existing facilities and programs. Of the 113 urban places in the region that had a population of 10,000 and over, in 1940, only 36 reported a public recreation program in the 1940 Year Book issue of "Recreation," compiled and published by the National Recreation Association. Ten municipalities with less than 10,000 people and two counties were other local programs listed in this inventory. The average per capita expenditure for recreation reported by the 48 programs was $0.60 as against a recommended standard of $3. Areas, facilities, and leadership were all below the schedule established by the National Recreation Association for the appraisal of community recreation.

How local responsibility for public recreation is to be met constitutes a problem that cannot be solved categorically, but there are two major approaches that may be cited. For urban centers with a population of 10,000 or over, a tax-supported municipal recreation system is generally accepted as the most practical and efficient method.

Activities offered in such a municipal program usually include playground and playfield sports and games, music, dramatics, arts and crafts, nature study, creative arts, swimming, picnicking and other outing forms of recreation, such competitive sports as baseball, softball, basketball, golf, and tennis, and various forms of social recreation. Mild winters in a considerable portion of the Southeast encourage many of these activities throughout the year. To provide these activities, qualified leadership, appropriate facilities, and adequate space are required. Nationally accepted standards for recreation space call for 10 acres per thousand inhabitants broken down by type of unit approximately as follows:

1. Children's playgrounds, 2½ acres for 1,000 people, one within ½ mile of every home.

2. Playfields for competitive sports, one acre per 1,000 people (5–15 acres in size); one within 5 miles of every home.

3. Neighborhood parks for hiking, picnicking, swimming, boating, scenic enjoyment, etc.; one such area for every 40,000 people within easy access of heavily populated sections.

4. Nonurban park for outing forms of recreation, 2 acres per 1,000 people, located within ½ hour's drive of the using public. (Except for a few of the larger cities, urban communities in the Southeast will have to depend on State park systems for nonurban park facilities.)

5. Special areas, such as golf courses, arboretums, botanical and zoological gardens; 2 acres per 1,000, size of areas varying and to be located as near the using public as possible.

These are national standards which were formulated largely on the basis of experience in congested Northern cities, where the pattern of life is very different from that of the Southeast. Consequently, considerable attention should be given to their adaption to local conditions in the region. The necessity for providing adequate facilities for Negro groups also calls for flexibility in the application of standards.

While it is believed that some of the larger cities may be able eventually to finance adequate local programs, with the possible exception of outlying parks, most municipalities are going to require some assistance from State and Federal sources. This indicates a possible need for some form of subsidization such as is

Figure 38

KEY TO NUMBERED AREAS SHOWN ON FIGURE 38

ALABAMA

Forests:
1. Black Warrior National Forest.
2. Talladega National Forest.
3. Tombigbee National Forest.
4. Conecuh National Forest.

Parks:
5. Monte Sano.
6. De Soto.
7. Oak Mountain.
8. Oak Mountain Recreation Demonstration Area.
9. Talladega.
10. Cheaha.
11. Weogufka.
12. Chickasaw.
13. Valley Creek.
14. Lagoons.
15. Chewacla.
16. St. Stephens.
17. Salt Springs.
18. Little River.
19. Cedar Creek.
20. Panther Creek.
21. Chattahoochee.

ALABAMA—Continued

Parks—Continued.
22. Bromley.
23. Gulf.

Recreation Areas—White:
24. Wilson Park.
25. Wheeler Dam Park.
26. Muscle Shoals Park.
27. Sipsey River.
28. Natural Bridge.
29. Bushy Creek.
30. Area in Walker County.
31. Lake Chinnabee.
32. Lake Margaret.
33. Area Near Montgomery.
34. Bladen Springs.
35. Pea River.
36. Open Pond.
37. Dauphin Island.

Recreation Areas—Negro:
38. Nitrate Plant Reservation No. 2.
39. Area Near Decatur.
40. Area Near Birmingham.

ALABAMA—Continued

Recreations Areas—Negro—Continued.
41. Area Near Selma.
42. Area Near Montgomery.
43. Wilburn Picnic Area.
44. McIntosh Dam.
45. Area Near Mobile.

Historic Sites and Monuments:
46. Tannehill Furnace.
47. Mound State Monument.
48. Horse Shoe Bend.
49. Fort Tombigbee.
50. Fort Toulouse.
51. Fort Mims.
52. Blakely.
53. Old Spanish Fort.
54. Shell Mound.
55. Fort Gaines.
56. Shell Banks.
57. Fort Morgan.

Wildlife Areas:
58. Wheeler Migratory Waterfowl Refuge.

FLORIDA

Forests:
1. Pensacola Land Utilization.
2. Choctawhatchee National Forest.
3. Pine Log State Forest.
4. Apalachicola National Forest.
5. Oceola National Forest.
6. Cary State Forest.
7. G'Leno State Forest.
8. Austin Cary Memorial Forest.
9. Walaka Land Utilization.
10. Ocala National Forest.
11. Withlacoochee Land Utilization.
12. Myakka River State Forest.

Parks:
13. Florida Caverns.
14. Glen Julia County Park.
15. Torreya.
16. Suwannee River.
17. Fort Clinch.
18. Gold Head Branch.
19. Volusia Hammock.
20. Kelly County Park.
21. Trimble County Park.
22. Warren County Park.
23. Payne County Park.
24. Sarab B. Moss County Park.
25. Holbrook County Park.
26. Crescent County Park.
27. Hillsborough River.
28. Highlands Hammock.
29. Myakka River.
30. Pan American.
31. Greynolds County Park.
32. Surfside County Park.
33. Everglades Causeway County Park.
34. Matheson Hammock County Park.
35. Southern Miami Wayside County Park.
36. Kendal Wayside County Park.
37. Perrine Playgrounds County Park.
38. Goulds Wayside County Park.
39. Modello Wayside County Park.
40. Homestead Bayfront County Park.
41. Royal Palm.
42. Everglades National Park Project.

Historic Sites and Monuments:
43. Santa Rosa Island.
44. Battle of Marianna.
45. Fort St. Joe.
46. Natural Bridge.
47. Olustee.
48. Fort Marion National Monument.
49. Fort Matanzas National Monument.
50. Dade Massacre.
51. Spanish War Memorial Park.
52. Fort Jefferson National Monument.

Wildlife Areas:
53. St. Marks Migratory Waterfowl Refuge.
54. Matanzas Bird Refuge.
55. Cedar Key Bird Refuge.
56. Ocala Game Refuge.
57. Brevard Reservation.
58. Chinsegut Hill Migratory Bird Refuge.
59. Pelican Island Reservation.
60. Indian Key Reservation.
61. Fort De Soto Bird Reservation.
62. Passage Key Bird Reservation.
63. Palma Sola Reservation.
64. Island Bay Reservation.
65. Pine Island Reservation.
66. Calcosahatchee Reservation.
67. Matlacha Pass Reservation.
68. New River Jungle.
69. Great White Heron Refuge.

GEORGIA

Forests:
1. Chattahoochee National Forest.
2. Plantation Piedmont Land Utilization.
3. Gwin Nixon State Forest.
4. Baxley State Forest.
5. Coastal Flatwoods Land Utilization.

Parks:
6. Cloudland Canyon.
7. Fort Mountain.
8. Vogel.
9. North Fulton County Park.
10. Adams Park—County.
11. Hard Labor Creek Recreation Demonstration Area.
12. Alexander Stephens.
13. Alexander Stephens Recreation Demonstration Area.
14. Indian Springs.
15. Pine Mountain.
16. Pine Mountain Recreation Demonstration Area.
17. Jones County Park.
18. Magnolia Springs.
19. Mjona Springs.
20. Gov. Troup National Resources Reservation.
21. Little Ocmulgee.
22. Robert Fechner Park—County.
23. Kolomoki Mounds.
24. Chehaw.
25. Jefferson Davis.

GEORGIA—Continued

Parks—Continued.
26. Wayne County National Resources Reservation.
27. Fort King George State Memorial.
28. Santo Domingo.
29. Okefenokee Swamp.
30. Laura S. Walker.
31. St. Marys River National Resources Reservation.
32. Santa Maria Mission National Resources Reservation.

Recreation Areas:
33. Lake Conasauga.
34. Camp Wahsega.
35. Lake Winfield Scott.
36. Rabun Beach.
37. Warwoman Dell.
38. Panther Creek.
39. Cool Springs.
40. Fern Springs.
41. Russell Lake.
42. Future Farmers of America Camp.
43. Eagle Mound Area (S. C. S.).

Historic Sites and Monuments:
44. Chickamauga—Chattanooga National Military Park.
45. New Echota National Memorial.
46. Kennesaw National Battlefield Park.
47. Ocmulgee National Monument.
48. Fort Pulaski National Monument.
49. Fort Frederica National Monument.

Wildlife Areas:
50. National Game Refuge.
51. Piedmont Wildlife Refuge.
52. Wilson Wildlife Refuge.
53. Savannah River Wildlife Refuge.
54. Tybee Island Wildlife Refuge.
55. Blackbeard Island Migratory Bird Refuge.
56. South Sapelo Island Wildlife Refuge.
57. Wolf Island Wildlife Refuge.
58. Okefenokee Wildlife Refuge.

MISSISSIPPI

Forests:
1. Holley Springs National Forest.
2. Delta National Forest.
3. Bienville National Forest.
4. De Soto National Forest.
5. Homochitto National Forest.
6. University State Forest.

Parks:
7. Spring Lake.
8. Tishomingo.
9. Tombigbee.
10. Natchez Trace Park.
11. LeRoy Percy.
12. Holmes County.
13. Legion.
14. Vicksburg National Military Park.
15. Roosevelt.
16. Clarkco.
17. Percy Quin.
18. Magnolia.

Recreation Areas:
19. Starkville Recreation Area.

Historic Sites and Monuments:
20. Brices Cross Roads Site.
21. Tupelo Battlefield Site.
22. Ackia Battlegrounds National Monument.

Wildlife Areas:
23. Yazoo Migratory Waterfowl Refuge.
24. Petit Bois Island Refuge.

Parkways:
25. Natchez Trace Parkway.

NORTH CAROLINA

Forests:
1. Nantahala National Forest.
2. Pisgah National Forest.
3. Duke Experimental Forest (State).
4. Uharie National Forest.
5. Sand Hills Land Utilization.
6. Croatan National Forest.
7. Jones and Salter Lakes Land Utilization.

Parks:
8. Tompkins Knob Park.
9. Bluff Park.
10. Rendezvous.
11. Hanging Rock.
12. Great Smoky Mountain National Park.
13. Mount Mitchell.
14. Morrow Mountain.
15. Crabtree Recreation Demonstration Area.
16. Fort Macon.
17. Cape Hatteras.
18. Guilford Court House National Military Park.
19. Moores Creek National Military Park.

Recreation Areas:
20. Joyce Kilmer Memorial Forest.
21. Wayah Crest.
22. Arrowood Glade.
23. Van Hook Glade.
24. Deep Gap.
25. Cliffside Glade.

NORTH CAROLINA—Continued

Recreation Areas—Continued.
26. White Pines.
27. Pink Beds.
28. North Mills River.
29. Craggy Gardens.
30. Carolina Hemlock.
31. Cumberland Knob.

Historic Sites and Monuments:
32. Kill Devil Hill Monument.
33. Fort Raleigh.
34. Cape Hatteras National Seashore Project.

Wildlife Areas:
36. Pisgah Game Reservation.
37. State Game Refuge.
38. Lake Mattamuskett Migratory Waterfowl Refuge.
39. Swan Quarter Migratory Bird Refuge.
40. Pea Island Migratory Bird Refuge.

Parkways:
Blue Ridge Parkway.

SOUTH CAROLINA

Forests:
1. Sumter National Forest.
2. Sand Hills Land Utilization.
3. Poinsett Land Utilization.
4. Clemson College Land Utilization.
5. Francis Marion National Forest.

Parks:
6. Oconee.
7. Table Rock.
8. Paris Mountain.
9. Kings Mountain Recreation Demonstration Area.
10. Kings Mountain National Military Park.
11. Chester.
12. Greenwood.
13. Sesqui-Centennial.
14. Poinsett.
15. Cheraw Recreation Demonstration Area.
16. Cheraw.
17. Myrtle Beach.
18. Aiken.
19. Barnwell.
20. Givhans Ferry.
21. Edisto Beach.
22. Hunting Island.
23. Lee.

Recreation Areas:
24. Yellow Branch.
25. Walhalla Fish Hatchery.
26. Greenville Wayside.
27. Greenwood Wayside.
28. Suber Recreation Area.
29. Aiken Wayside.
30. Kershaw Wayside.
31. Georgetown Wayside.
32. The Oaks Recreation Area.
33. Huger Recreation Area.
34. Coastal Recreation Area.
35. Colleton Wayside.

Historic Sites and Monuments:
36. Cowpens National Battlefield Site.
37. Eutaw Springs Battlefield Site.
38. Castle-Pinckney National Monument.

Wildlife Areas:
39. Sand Hills Wildlife Refuge.
40. Cape Romain Wildlife Refuge.
41. Savannah River Wildlife Refuge.
42. Hilton Head Migratory Bird Refuge.

TENNESSEE

Forests:
1. Chickasaw Forest.
2. Natchez Trace Forest.
3. Stewart State Forest.
4. Lewis State Forest.
5. Lebanon Cedar Forest.
6. Standing Stone State Forest.
7. Pickett State Forest.
8. Morgan State Forest.
9. Bledsoe State Forest.
10. Grundy State Forest.
11. Marion Franklin State Forest
12. Cherokee National Forest.

Parks:
13. Shelby Forest Recreation Dem. Area.
14. Shiloh National Military Park.
15. Pickwick Park (T. V. A.).
16. Natchez Trace Park.
17. Chickasaw.
18. Nathan Bedford Forrest Memorial Park.
19. Fort Donelson National Military Park.
20. Montgomery Bell Recreation Dem. Area.
21. Percy Warner Municipal Park.
22. Cedars of Lebanon.
23. Stones River National Military Park.
24. Standing Stone.
25. Pickett.
25. Cumberland Park (F. S. A.)
27. Fall Creek Falls Recreational Demonstrative Area.

TENNESSEE—Continued

Parks—Continued.
28. Chickamauga-Chattanooga National Military Park.
29. Harrison Bay Park (T. V. A.).
30. Cove Lake.
31. Norris Park (T. V. A.).
32. Big Ridge Park (T. V. A.).
33. Great Smoky Mountain National Park.
34. Shelby.
35. Booker T. Washington (Negro).

TENNESSEE—Continued

Recreation Areas:
36. Reelfoot Lake.
37. Lake Chilhowee.
38. Horse Creek.
39. Dennis Cove.
40. Backbone Rock.

Historic Sites and Monuments:
41. Meriwether Lewis National Monument.
42. Camp Blount National Memorial.
43. Andrew Johnson National Memorial.

TENNNSSEE—Continued

Wildlife Areas:
44. Reelfoot Lake Game Refuge.
45. Lake Isom Waterfowl Refuge.
46. Norris Lake Wildlife Reservation.
47. Buffalo Springs Game Farm.
48. Cherokee Game Reservation.

Parkways:
Natchez Trace Parkway.

now in operation in agricultural and educational fields. From a study of the past experiences of the Work Projects Administration and Civilian Conservation Corps in this field and of other Federal subsidy programs, it should be possible to evolve a feasible plan which would aid materially in equalizing recreational opportunities without displacing local responsibility for administration.

To date, States have done very little to help implement local recreation programs. Here the history of State support for education may be used as a guide in working out a plan for recreation. This applies particularly to municipalities under 10,000 and to towns, villages, and rural communities where by far the majority of the population of Southeastern States now live.

Actual experience has shown that few communities with a population of less than 10,000 are able to support an independent recreational agency and hence must depend on some form of joint action. County governments, where competently administered and adequately financed, offer one means of bringing about such joint action. Unfortunately, most counties in this general region are lamentably weak both administratively and financially.

This situation has led to the recommendation in several of the Southern State Recreation Study reports, which are long-range park development plans for each of these States, that public-school systems assume responsibility for recreation programs in rural farm and nonfarm communities. Such a proposal is in line with the modern concept that education, as a public service, should be made available to all age groups on a sustained basis. Important, too, is the fact that smaller communities have, for generations, looked to the schools for cultural and social leadership and that school buildings and grounds have been centers for activities in these fields.

Thus, if funds for additional facilities, lands, and personnel were made available and educators were willing to accept broader responsibilities, a recreation program adapted in content to local needs could be offered with a minimum delay and at a minimum cost. Existing facilities in the way of school buildings with their auditoriums, their rooms for group meetings, and their grounds, many of which are already equipped for sports and games, could be put into immediate use. In most instances, school lands would have to be expanded to accommodate adequately activity requirements and to provide for such outing forms of recreation as picnicking, nature study, native arts and crafts, and extensive outdoor sports. The existing school organization and staff could handle the administration of the program through the addition of needed specialists, thus cutting overhead to a minimum.

A well conceived and administered neighborhood recreation program under local supervision will do much to check the disintegration of small farm and nonfarm communities caused by the advent of automobiles, good roads, and commercial amusements. Such a program will help to make the school, the village, and the small town once more a center of interest and activity around which community pride and neighborliness can be fused.

While each rural neighborhood, village, or small town may have its playgrounds, playfields, and forest park adjacent to or near by the school plant so they may serve both educational and recreational purposes, it is important to recognize that rural people may need and prefer recreational opportunities different from those of urban dwellers. It may not be feasible to operate summer playground programs, but community center activities including music, dramatics, folk dances, and games, competitive sports, and social recreation can and should be offered on a year-round basis.

Nonurban Recreation

It has been indicated that the provision of close-at-hand areas and facilities which are used wholly or in large part by local people is considered primarily a community responsibility, that while the State and Federal governments may aid through some form of subsidization and by extending consulting services to local agencies on planning, development and administration, sponsorship and supervision belong to those whom the program serves.

This same policy of placing responsibility on those enjoying the benefits has been accepted in allocating State and Federal obligations in the field of public recreation. It places on the State responsibility for those recreational undertakings of interest and value to all or a large part of a State's citizens and on the Federal Government the responsibility for administering areas and sites of national interest, such as the

Great Smoky Mountains National Park, Okmulgee National Monument, Andrew Johnson Homestead National Monument, and the Chickamauga-Chattanooga National Military Park. As a secondary function in connection with timber production, national forests may and usually do offer opportunities for many forms of outdoor recreation. In addition, the Federal Government has established and is now developing and operating recreational demonstration areas of State significance only, but it is intended that these areas will be turned over to the State as soon as necessary legislative arrangements can be made.

Figure 38 gives a pictorial record of existing nonurban parks, recreational areas, wildlife preserves, and historic sites in the Southeast, and indicates by appropriate symbol where additional areas and sites are required to meet the recreational needs of the region for nonurban areas primarily of State or Federal character. It thus presents the more important elements of a long-range outing program to serve the people of the region, its touring visitors and vacationists. This program should eventually include provisions for:

1. Nonurban recreational areas close enough to major population groups to provide frequent week-end and holiday outing opportunities for at least 5 percent of the using public at one time, and vacation outings for those unable to go far afield because of limited funds.
2. Nonurban recreational areas located in sections of the region which, because of climate, scenery, or exceptional opportunities for active recreation, have outstanding vacation appeal.
3. Preservation of the region's exceptional scenic, scientific, and historic areas and sites.
4. Wildlife areas for the propagation and conservation of fish and game adequate to meet the requirements of an expanding hunting and fishing program.
5. Pleasant travelways connecting the more important recreational sections of the region (mountains, seacoast, gulf, and such outstanding historic places as New Orleans, Charleston, and St. Augustine) for touring visitors, vacationists. and citizens.

Types of areas shown on the map include parks, recreational areas, public forests, historic sites and monuments, and parkways.

Areas designated as *parks* are established for inspirational and recreational purposes. They preserve the finer scenic, scientific, and recreational resources of the country for the benefit of present and future generations; and at the same time, they provide people with opportunities to engage in enjoyable forms of outdoor recreation such as swimming, hiking, fishing, picnicking, camping, boating, nature study, informal sports and games, or simply to relax in pleasant surroundings.

Recreational areas as designated on the map are recreational waysides or portions of a public forest set aside and developed for recreational use. They offer limited facilities for recreation similar to those provided by parks.

Historical sites and monuments have as their primary purpose the preservation of areas and sites of outstanding significance to America's history. They occasionally provide limited facilities for active recreation as a secondary function.

The primary purpose of *public forests* is the production of timber, but as a secondary function they offer splendid opportunities for hunting, fishing, hiking, and other similar outdoor pursuits.

In like manner, *wildlife areas*, while established primarily for the propagation and conservation of game and fish, frequently contain limited facilities for active recreation.

A *parkway* is an elongated park of which a principal feature is a pleasure-vehicular road throughout its entire length. Abutting property, as in the case of any park, has no right of access except at specified points.

A review of the map shows that there are one or more existing recreational areas located in most sections of the region, but this does not signify that the outing needs of these sections are adequately served. A number of factors must be considered in appraising the need for nonurban recreational facilities, and in planning to meet this need.

For example, it is necessary to know the recreational habits and interests of the people. Studies reveal that well over 90 percent of the visitors to nonurban recreational areas in the Southeast come as members of a group which may be the family, two or more families, or an organization. To meet the diversified interests of such groups, there must be, close at hand, opportunities for a wide range of activities which may be participated in by the group as a whole and by the different members as individuals. Activities most in demand include swimming, picnicking, fishing, boating and informal sports, and games. Three of these activities require water. This has led park planners and administrators to consider water an indispensable recreational resource in the hot summer climate of most sections of the Southeast.

The capacity requirements of areas and facilities for recreation are equally important. Experience indicates that an attractive nonurban park which offers a diversified and efficiently administered outing program, including water sports, may be expected to attract close to 5 percent of the population living within a 15- or

20-mile radius (the maximum distance for frequency of attendance at nonurban parks) on a normal summer holiday, provided it has adequate accommodations and no competing areas of equal quality. Thus it appears reasonable to plan for that large a percentage of the total population in a long-range development program for a region or locality. Attendance and use figures for Southeastern parks, supplemented by preference surveys conducted on several of these parks, further indicate that the ratio of facility capacities to population should be approximately as follows: swimming, 2 percent; picnicking, 2 percent; fishing, 1 percent; boating, 1 percent; informal sports and games, one-half of 1 percent. Other facilities required in a nonurban park to provide a well-balanced program of activities include nature museums and nature trails, council-fire circles and amphitheaters, hiking and bridle trails, recreational buildings and shelters to afford protection against unfavorable weather conditions, and organized camps, family cabins, lodges and meal-serving facilities to make possible overnight and vacation outings.

The kind and quality of available resources will frequently determine the usefulness of nonurban recreational resources. Water has already been mentioned as one of the most nearly indispensable of these. Not only is water needed to make possible three of the four most popular outing activities, but it also contributes to the enjoyment derived from camping, picnicking and many other forms of outdoor recreation by increasing the desirable character of the environment. The unspoiled natural landscape often has great scenic value which enhances the pleasure of all forms of outing recreation. Vegetation contributes to the beauty of the landscape, stimulates the mind and offers it endless opportunities for a constructive use of leisure in the study of natural sciences. The same may be said of wildlife. Topography adds the variety that is the spice of life to those who go into the open country in search of relaxation. Here towering mountains are no more important than rolling foothills, flat plains or tangled swamps. They all are a part of man's natural habitat and should be given equal consideration in recreational area planning.

The distance people can and will travel for an outing is determined by factors of time, cost, and available means of travel. Numerous studies of attendance and use of parks in the Southeast supplemented by park patron questionnaires and by highway travel surveys indicate that by far a majority of Southern people are confined to within 10 to 15 miles of their homes for week-day outings, 15 to 20 miles for holiday outings, a hundred miles for extended week-end outings and three hundred miles for vacation outings.

With the planning factors described above in mind, a further review of the existing facilities shown on the map reveals a deficiency of outing accommodations in practically every section of the Southeast. It shows that a large number of the areas listed are either minor developments on public forest lands equipped with a few picnic tables and stoves, or camp-grounds located adjacent to or near highways; that others are historic sites or wildlife areas without any facilities for active recreation; and that many of the parks offer only picnicking, hiking and scenic enjoyment.

RECOMMENDATIONS

With respect to the general problem of the adequacy of financial support for recreational programs it is difficult to be more specific than to propose Federal aid, revision of local- and State-tax systems, and the general development of the regional economy in accordance with the kind of program outlined in the sections of this report dealing with agricultural and industrial recommendations. If revision of local and State tax systems is undertaken, consideration should be given to the raising of revenue for recreational programs by taxing such business enterprises as tourist camps, which profit from recreation. Special taxes, such as fees from hunting and fishing licenses, also represent sources of funds which might be utilized to finance recreational programs.

The provision of recreational facilities for both cities and small communities of the region requires special emphasis. There are in the Southeast approximately 77 cities of 10,000 or more inhabitants without recreational facilities. A development program, supported in many instances by Federal and State funds, should be systematically carried out to provide these places with basic recreational facilities. In communities under 10,000 and in rural farm areas, community recreational areas should be established in conjunction with consolidated school plants, through the cooperation of the public schools and recreational agencies.

The general approach to the solution of management and personnel problems in the recreational field has been presented in the foregoing pages. There are three major problems, however, for which action programs can be stated more specifically. The first of these deals with the State-by-State summary of the region's nonurban recreational needs as set forth on Figure 38. As summarized from the individual State Park, Parkway, and Recreation Area plans recently completed by

the various State Park Authorities and Planning Boards in connection with the National Park Service, these recommendations are: [2]

Alabama

(1) The 33 parks and recreational areas already established should be completely equipped; only a few are fully developed at present. (2) More adequate recreational areas for Negroes are recommended. In terms of population distribution of the Negro race, parks of 500 acres or more providing facilities for a well rounded outing program, giving particular emphasis to water sports, picnicking, group activities and low cost vacation camping should be developed near Birmingham, Mobile, Montgomery, Decatur, and Tuscaloosa. (3) Consideration should be given to the establishment for whites of a large park along the Tennessee River in Marshall County, an area on Bankhead Lake in Walker and Jefferson Counties, a beach park on Dauphin Island and outlying city parks to serve the week-end outing needs of the white population in Birmingham, Montgomery, and Mobile.

Florida

(1) All existing areas, particularly those falling under the jurisdiction of the State Park Service, should be fully equipped and put into satisfactory operation before new development projects are undertaken. (2) It is recommended that the coastal and inland areas listed below be acquired by the State at the earliest possible moment in order that they may be held as a reserve for beach and park development whenever funds are available: (*a*) Lower East Coast area, Palm Beach or Brevard Counties, including approximately 1 mile of beach frontage plus a generous portion of the back country for a wildlife sanctuary; (*b*) Ponte Verda Beach area, St. Johns County, 25 to 40 miles southeast of Jacksonville, at least 1 mile of beach plus generous back country; (*c*) Area near Melbourne, at least 1 mile of beach plus generous back country; (*d*) Beach area between Venice and Marco Island, Lee or Collier County, at least 1 mile wide and extending into the back country; (*e*) Coastal area near Cedar Keys, extensive shore and inland area; (*f*) Beach area near Tarpon Springs, Pinellas County at least 1 mile of beach and generous back country; (*g*) Generous inland lake areas in the Orange-Osceola-Seminole lake country, of State park character; (*h*) Jacksonville Beach area for Negroes, 700 acres in Duval or St. Johns County; (*i*) Beach area for Negroes near Pensacola, 800 acres in Santa Rosa County; (*j*) Anastasia Island, St. Johns County (as an addition to Castillo de San Marcos and Fort Matanzas National Monuments); (*k*) If, at the end of the present national emergency, St. Joseph's Peninsula in Gulf County and Crooked Island in Bay County are declared surplus Federal lands by the army, both areas should be added to the State's reserve of beach lands; (*l*) Inland seashore or lake areas for specific needs should be acquired at Tampa, Orlando, West Palm Beach, Tallahassee and Marianna; (*m*) The preservation of one or more of the outstanding giant springs in the State is of greatest urgency. (3) The development of a system of wayside parks and stops should be considered to provide simple facilities for travelers. This might be combined with a scheme to mark and properly administer the historic spots, many of which are to be found adjacent to the highways. (4) The Everglades of south Florida have been approved for inclusion in the National Park System but little has been done to acquire the necessary lands. Acquisition of these lands should proceed as rapidly as possible. (5) Areas selected for development should conform to the existing high standards for State parks—natural boundaries which will later simplify control or protection or which will discourage competition, both scenic and commercial, should be given careful study at the time plans for acquisition are made.

Georgia

(1) Since none of the 33 nonurban parks and recreational areas in Georgia are adequately equipped to handle a well-rounded program of outing activities, first consideration should be given to enlarging and completing facilities on existing areas before new projects are undertaken. (2) At least 2,000 acres should be acquired as an addition to Indian Springs State Park and 4,000 acres as an addition to Vogel State Park. (3) To serve the needs of the half million people living in Atlanta and its vicinity, 10,000 acres, including Stone Mountain, should be acquired and developed into a fully equipped recreational area with facilities for both whites and Negroes. (4) Other new areas which are needed to round out the State's nonurban park program include a coastal area of several thousand acres in either Chatham or Liberty County to provide the State with a salt water beach park; the Amicalola Falls area in Dawson County, which when properly developed, will offer a well-balanced program within holiday and week-end use of metropolitan Atlanta and the city of Athens; and large outlying areas, including facilities for both whites and Negroes, near Augusta, Columbus, Macon, and Savannah. (5) Since at present there are no nonurban recreation facilities for Negroes in the State, the needs of this race should be given important consideration in future developments.

Mississippi

(1) All existing parks should be developed more completely. (2) An outlying city park of 500 acres or larger at Jackson and a number of smaller community areas for scattered rural people should be established. (3) The development of Deer Island, one-half mile offshore opposite Biloxi, as part of Magnolia State Park, would provide the only public sand beach within 50 miles of that city. (4) Consideration should be given to the provision of park facilities for Negroes, none of which facilities now exist. Numerous small community parks located on the outskirts of larger towns and adjacent to consolidated Negro schools in the rural sections present important sources for development. If a careful study of the Negro population served revealed it as warranted, consideration should be given to the provision of a public beach for Negroes somewhere on the Gulf coast. (5) There is a need for a State park for whites in the vicinity of Clarksdale to serve the people of the Upper Delta. (6) A project that should be developed immediately is the recently acquired area near Hattiesburg which is intended as a recreational site for soldiers at Camp Shelby. (7) Favorable consideration should also be given to the development of outing and overnight facilities along the Natchez Trace to handle tourist as well as local needs and on the Chewalla Reservation area of the United States Forest Service.

North Carolina

(1) Essential facilities on all existing State and Federal areas should be brought to completion. These areas include 9 State projects; 3 under the National Park Service, 1 in the Raleigh-

[2] Portions of several of the States considered here lie within the Southern Highlands area. When a comprehensive study which is now being made of the recreational resources of these highlands is completed, additional recommendations can be made for the portions of the States falling within that area.

Durham section and 2 along the Blue Ridge Parkway in the northeast; and 12 under the United States Forest Service on its lands in the western part of the State. The most important of the present undertakings is the acquisition of lands needed to round out the Cape Hatteras National Seashore area. (2) Other needed outing areas which are recommended include: (*a*) A 3,000-acre park near Wilmington in New Hanover or Brunswick Counties to serve the southeastern coastal counties and to provide an ocean shore State park within less than a day's drive of many inland counties; (*b*) An area of 3,000 or more acres in the vicinity of Goldsboro to provide outing facilities for both white and Negro populations in the east central counties; (*c*) An area (already under consideration) near Morganton, 3,000 acres or larger in extent, to provide a mountain park reasonably close to a large section of the congested Piedmont industrial region; (*d*) A 2,500-acre area on White Lake to give public access to that exceptionally attractive body of water for the people of the southeastern counties; (*e*) An area near Hendersonville of from 4,000 to 5,000 acres in size to insure the protection and preservation of important scenic resources for all the people of the State and its visitors and to serve the nearby park needs of the population living in that vicinity; (*f*) A Negro area of 500 acres or more, near Wilmington and Greensboro.

South Carolina

(1) Since South Carolina has already what is probably the best balanced nonurban recreational area system in the Southeast, the completion of the existing well-rounded program is of first importance. (2) Supplementing the present Negro park programming by the completion of separate areas for Negroes at the Greenwood and Hunting Island State parks is recommended. (3) Additional areas for Negroes to be established in the vicinity of Charleston, Columbia, Spartanburg, and Greenville.

Tennessee

(1) Completion of developments on existing projects, especially public outing facilities at Montgomery Bell and Shelby Forest Recreational Demonstration Areas, Booker T. Washington and Shelby Negro State Parks and vacation accommodations on Tennessee Valley Authority areas, and various needed facilities at United States Forest Service developments, namely, Chilhewee, Rock Creek, and Back Bone Rock Recreational areas, should be given priority. (2) State administered parks for the vicinities of Jackson, Murfreesboro, and Columbia should be established. (3) Numerous smaller areas (100 to 500 acres) to take care of the close at hand needs of both whites and Negroes in villages and rural communities are also required. (4) Nonurban Negro parks should be established in the vicinities of Nashville, Knoxville, and Jackson. (5) Among new projects, prior consideration should be given to the acquisition and development of Negro areas in the Nashville and Jackson regions, to the establishment of a State park in the vicinity of Columbia, to the development of recreation facilities for vacation as well as local use on possible power reservoirs near Celina, Smithville, Nashville, White Bluff, and Clarksville, to the development of a recreational area at Roan Mountain by the United States Forest Service, and to the acquisition of lands needed to establish the authorized Cumberland Gap National Historic Park, a portion of which lies in Tennessee.

The second problem for which it is possible to make more or less specific recommendations at this time is the provision of a number of through travelways. It is recommended:

(1) That the proposed Federal system of recreational travelways for the Southeast be gradually developed until completed. This proposed system will provide three main north-south routes linking the eastern seaboard and the Great Lakes region with Florida and the Gulf, one east-west route between St. Augustine, Fla., and New Orleans, La., and several connecting links between these main trunklines. (2) That public waysides along streams and inland waters be established and equipped with such necessary facilities as docks, boat basins, fueling stations, convenient overnight accommodations, and meal services.

The third problem, that of coordinating recreational programs which are interstate in scope, may be dealt with by some type of joint public and private organization through which planning and action involving several states can be undertaken. The development of high-grade tourist camps along the principal north and south highways, built, equipped, and operated according to standards agreed upon by the participating States, would be very desirable and would promote more recreational travel.

GOVERNMENT AND PUBLIC ADMINISTRATION[1]

The activities of local, State, and Federal government are an increasingly important factor in our daily lives, and any plans for regional improvement must include a careful consideration of the role of governmental institutions. Improvement in government may well be considered as part of the general effort to conserve and develop the resources of an area. The period in history in which a region could use its natural resources, its soils, its forests, and its minerals without thought of the future is gone. In modern times, no region can be indifferent to improvement in government or tolerant of inefficiency in the conduct of public affairs. With income and wealth equal to only one-half of the national average and with taxpaying ability probably even lower, the Southeast can ill afford the luxury of bad or inefficient government.

Increased economic activity in a given area is certain to bring new tasks to government. Many phases of social and cultural improvement must be accompanied by a widening of the sphere of governmental action. Gains in material and cultural standards of living have always brought with them demands for more and better public services. There is no reason to believe that the Southeast will provide an exception to this general observation.

As regional plans for development are translated into programs of action, government in the Southeast must be strengthened to meet the new demands upon it. Already Federal financing is helping to reconcile the differences between ability of the region to support additional governmental services and the necessity for these same services if the region is to achieve a fuller development of all its resources. Especially active programs by Federal agencies are further assisting to this end.

In this connection the program of the Tennessee Valley Authority provides an effective illustration of one type of role which government may play in the development of a region. The Authority is particularly significant for the important administrative characteristics it possesses. Although a Federal agency, it operates within a limited geographic area. It is empowered and directed, within that area, to approach the whole interrelated problem of developing resources. While its powers are centralized and its interests embrace many functional jurisdictions, administrative decisions are made in the area where the problems occur. The cooperative support of public agencies and institutions of the region is an essential part of the Authority's approach to regional problems. The administrative methods which the Authority is developing may in the last analysis be more significant than the activities which it is undertaking. The activities themselves, if considered individually, have long been undertaken by various Federal agencies.[2]

It is necessary that the Southeast realize the fullest measure of public service from all levels of government if its regional program is to be successful. This calls for more than honesty alone; it calls for wisdom in the conduct of government in order that it may play its proper role in the development program, and for ability to secure and maintain efficiency of operation while preserving and stimulating the spirit of democratic institutions. The problems of government—of structure, of functions, of finance—are inextricably bound up with the development of the region. These problems will be of major importance regardless of whether the pattern of development under consideration is dependent upon private initiative, upon State and local agencies, upon action by the Federal Government, or the combined efforts of all.

Now, more than ever before, plans for regional development are being attuned to considerations of the national welfare. The rapid expansion of productive and service facilities, in the Southeast as in other sections of the country, has given the word "development" a new meaning of progress toward national preparedness. It is perhaps too early to predict how much of this new development in the Southeast provides opportunity for a permanent regional improvement and how much must be regarded as a regional sacrifice. An urgent public necessity has provided the stimulus for the development, and government in the region has accepted the added responsibilities which it entails. There are opportunities, however, along with the responsibilities and sacrifices, to improve government's financial position and to reorganize its administrative structure. There are opportunities to utilize elements of wartime development, after the immediate emergency is over, as a basis for a more permanent peacetime development.

[1] Prepared under the direction of Dr. Lawrence L. Durisch by the staff of the Government Research Division, Department of Regional Studies, Tennessee Valley Authority.

[2] David E. Lilienthal, *The Development of a Region's Resources: The TVA Reports to Its Stockholders.* Address by David E. Lilienthal, Chairman of the Board, Tennessee Valley Authority, before the Southwest Valleys Association, Little Rock, Ark., October 17, 1941, Knoxville, Tenn.; pp. 4-5, 8.

Economic and Financial Basis of Government

Ability to Support Government

The economic income of the Southeast tends to set an upper limit to the region's ability to support government and governmental services. The per capita 1940 income payments to individuals in the seven Southeastern States amounted to $309, ranging from $465 for Florida to $195 for Mississippi. The national average was $573. Per capita State and local tax collections for 1939 were $33 for the region and $63 for the Nation. The proportion of income per capita going to State and local taxes is approximately the same for both Southeast and the Nation, amounting in each case to approximately 11 percent. However, because of its low income and its population characteristics, the degree of tax sacrifice in the Southeast is substantially higher (table I).

Indexes have been constructed which further show the Southeastern States far below the national average in taxpaying ability. An index prepared by Prof. B. U. Ratchford gives the seven States an arithmetical mean rating of 54, with 100 as the national average. Another ability index computed from the estimated yields of a group of six taxes selected by the research staff of the President's Advisory Committee on Education gives this area a rating of 43 (table II).

TABLE I.—*Per capita income payments to individuals and per capita State and local tax collections, 7 Southeastern States and the United States*

State	Per capita income payments, 1940 [1]	Per capita State and local tax collections, 1939 [2]	Ratio, taxes to income (percent)
Alabama	$264	$26	10
Florida	465	56	12
Georgia	321	29	9
Mississippi	195	31	16
North Carolina	335	37	12
South Carolina	281	28	10
Tennessee	325	30	9
Total, 7 States	309	33	11
Total, United States	573	63	11

[1] *Survey of Current Business*, August 1941.
[2] Computed from *Tax Systems*, 8th ed., Tax Research Foundation; population data from 1940 *Census of Population*.

TABLE II.—*Measures of per capita taxpaying ability, 7 Southeastern States and the United States*

State	Ratchford's ability index, 1938 [1]	Estimated yield of ability taxes, 1935 [2]
Alabama	46	30
Florida	77	86
Georgia	52	38
Mississippi	37	29
North Carolina	60	52
South Carolina	49	33
Tennessee	57	52
Total, 7 States	54	43
Total, United States	100	100

[1] B. U. Ratchford, *American State Debts*, p. 530.
[2] Relatives computed from data presented by Paul R. Mort and Eugene S. Lawler, *Principles and Methods of Distributing Federal Aid for Education*, The Advisory Committee on Education, Staff Study No. 5, 1939, p. 50.

Regional Characteristics of Government

The Southeast is predominantly an agricultural region. According to the 1940 census, the rural farm population constituted 45 percent of the total as contrasted with a national average of 23 percent.[3] A rural economy such as that of the Southeast has in the past been less dependent upon government for services than have urban, industrial centers. This natural self-sufficiency in many sections has been accompanied by a popular interest in government directed more to personalities than to formal processes. It has engendered a certain indifference to the quality of services performed and has discouraged efforts toward a more effective public accountability. Another aspect of the situation is the relatively small cost income available in rural areas for the support of government.[4] Many of the difficulties and weaknesses of rural local government in the region are traced to these causes.

Other population characteristics of the Southeast also have their influence upon government. Among these might be mentioned an important racial minority, amounting in some sections to a majority, which has created special problems in the provision of public services—for example, two parallel school systems. It is significant too that only 53 percent of the total population is in the more productive age groups, compared with 59 percent for the Nation. Approximately 27 percent of the population is of school age, while the national average is 23 percent.[5] The age distribution not only reduces per capita productivity in the Southeast, but increases the relative need for school and public health services as well.

School and Public Health Services

Economic and social characteristics of a region tend to determine the types of public services most needed for its development. A number of State and local activities of a governmental nature have particular significance to the Southeast. In this respect, and without minimizing the importance of other essential public functions, schools and public health facilities stand out and deserve special emphasis. Education and physical well-being are prerequisite to any lasting improvement in governmental processes and to more general regional

[3] *Sixteenth Census of the United States, Population (1940)*, Second Series.
[4] The per capita farm income in the seven Southeastern States is estimated at $126 as compared with a national per capita farm income of $269 and a national per capita income from all sources of $573. *Agricultural Statistics, 1940*, U. S. Department of Agriculture, Bureau of Farm Economics; and 1935 census data on farm population.
[5] *Sixteenth Census of the United States, Population (1940)*, Second Series; and *Age Composition of Population of the United States* (1940), Series P-10, No. 6.

betterment. The public school system and the public health office look to government for financial support and policy guidance to these ends.

Nearly all measures show the Southeastern States seriously deficient in educational expenditure relative to the Nation. The region's financial difficulties are reflected in average school expenditures per pupil in average daily attendance ($39 compared with $84 for the nation); and in the average value of school property per pupil enrolled ($107 compared with $274).[6] These school expenditures are low in spite of the fact that approximately one-fourth of all State and local revenues in the Southeastern States are ordinarily expended for education.

The need for improvements in the public health is forcibly brought home by results of physical examinations under the Selective Service Act. A recent report to the President indicates that approximately half of the Nation's 2,000,000 selectees have been rejected for physical disabilities, and the Southeast has contributed its share of rejections. Per capita State expenditures for health and sanitation in 1938 were $0.34 for both the Southeast and the Nation;[7] this does not include contributions of local governments to public-health services. Much of the expenditure by the Southeastern States for public-health work is due to an early recognition by the United States Public Health Service and the Rockefeller Foundation of the special health needs of the region. In 1938 nearly one-fifth of the Federal grants for public-health work were distributed to the seven Southeastern States, and revenue from this source made up nearly half of the State health budgets.[8]

Governmental Revenue

The seven Southeastern States and their local subdivisions collected approximately $623,000,000 in taxes during the fiscal year 1940. Taxes collected by State governments in this area were 60 percent of the total State and local taxes in contrast with 48 percent for the United States. Not only do these State governments collect a relatively larger portion of the total State and local revenue, but only 11 percent of State tax collections were returned to local governments whereas the national figure was 14 percent (Table III).

The total State tax collections of the seven States in 1940 represented an increase of 130 percent over collections in 1932, due largely to the imposition of new levies. Property taxes, State levies on gasoline and motor-vehicle licenses, pay rolls, corporation franchises,

[6] See p. 162 above.

[7] Computed from data in *Financial Statistics of States, 1938*, U. S. Department of Commerce, Bureau of the Census.

[8] *Ibid.*

TABLE III.—*Annual State and local tax collections for the 7 Southeastern States*

[In thousands]

State	Estimated total State and local taxes	State taxes, 1940 [1]		Estimated local taxes, 1936–39 [2]
		Total	Share returned to local governments	
Alabama	$79,719	$55,766	$8,734	$23,953
Florida	106,169	57,428	12,945	48,741
Georgia	95,097	53,081	3,477	42,016
Mississippi	68,135	32,348	4,821	35,787
North Carolina	124,673	85,395	875	39,278
South Carolina	55,606	34,651	5,409	20,955
Tennessee	93,671	54,019	6,563	39,652
Total 7 States	623,070	372,688	42,824	250,382

[1] *Tax Systems*, 8th Ed., Tax Research Foundation.

[2] Data for Alabama, Florida, Georgia, South Carolina, and Tennessee from *Tax Yields*, Tax Policy League 1939. Property tax collections for Mississippi from a *Survey of Homesteads in the State of Mississippi*, State Tax Commission, June 30, 1938. Property tax collections for North Carolina from *Tax Systems of the World*, 7th ed., 1938.

privileges, and alcoholic beverages are now common to each of the States. Corporation income taxes are imposed in each State but Florida, and individual income taxes are used in each of the States except Florida and Tennessee. Alabama, Mississippi, and North Carolina have general sales taxes. Special taxes on tobacco products are employed in all the States except Florida and North Carolina. The combined revenues from these levies accounted for 85 percent of the taxes collected in 1940 by the seven State governments.

Meanwhile local tax sources, particularly in rural areas, have tended to deteriorate. According to the best available information, local tax collections in 1940 for the Southeastern States were no larger in aggregate amount than in 1932, and outside the larger municipalities local tax collections have generally declined. The cause is to be found in the property tax, which is the source of approximately 90 percent of local tax revenues. In many States a deliberate shift from the property tax is evidenced by homestead and industrial exemptions. Imperfections in machinery for assessment and collection have contributed further to the decline.

During the past decade particularly, Federal funds have been provided which have enormously supplemented State and local tax collections. Direct Federal payments to the seven Southeastern States and Federal expenditures within these States to provide relief, exclusive of loans and other aid, totaled $495,000,000 for the fiscal year 1940. The comparable figure for the 1932 fiscal year was less than $28,000,000.[9] Federal assistance in 1940 equaled or exceeded the total of State and local taxes in Alabama, Mississippi, and

[9] *Annual Reports of the Secretary of the Treasury*, 1940, pp. 822–829; 1932, pp. 443–446, The distribution in millions of dollars for 1940 was Alabama, 84; Florida, 47; Georgia, 81; Mississippi, 81; North Carolina, 75; South Carolina, 60; and Tennessee, 67.

South Carolina and was 79 percent of the aggregate of such tax revenues for the seven Southeastern States. The per capita figures were $27 for the Southeast and $30 for the Nation.[10]

Public Debt

The public debt tends to reflect the added cost of new governmental functions. Generally there is a lag in adjusting revenues to finance these new functions, causing resort to borrowing. For example, the new necessity of providing highways for modern traffic needs was originally a local governmental function and was a primary cause of a sharp increase in local debt after the World War. The tendency for highways and other formerly local functions to become State responsibilities, and the general expansion of the field of State activities, led to a fivefold increase in the State debt of the Nation during the last 25 years. The increase in Federal activities has been accompanied by an increase in Federal debt. As responsibilities for public services move to higher levels of government, an opportunity for substantial reductions in debt presents itself to these local jurisdictions where it has been found possible to maintain and strengthen local revenue or introduce savings in operating costs.

Gross State and local debt less sinking-fund assets of the seven Southeastern States was $1,800,000,000 in 1937, according to information supplied to a congressional committee by Commissioner Harrington of the Work Projects Administration.[11] State debts accounted for 23 percent of this total, 36 percent was municipal debt, and county and district debts constituted the remaining 41 percent.

Per capita State and local debts in 1937 were over a third higher for the Nation than for the Southeastern States. The regional average was $100 per capita, while the national average was $136 per capita. However, per capita State debt was somewhat higher for the region as shown in the following tabulation.

Region	Per capita public debts, 1937		
	Total	State	Local
Alabama	$69	$26	$43
Florida	262	0	262
Georgia	27	9	18
Mississippi	80	23	57
North Carolina	137	39	98
South Carolina	67	23	44
Tennessee	109	32	77
7 States	100	24	76
United States	136	21	115

[10] The data on Federal funds exclude direct expenditures within the region by Federal nonrelief agencies such as the Tennessee Valley Authority.

[11] *Work Relief and Relief for Fiscal Year 1941*, Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, 76th Cong., 3d sess., 1940, pp. 835–836.

State and local debts in the Southeast were 13 percent lower in 1937 than in 1932. Between these two dates State debts increased nearly 15 millions in Georgia and 10 millions in Mississippi, but declined 34 millions in South Carolina, 28 millions in North Carolina, and 7 millions in Alabama. The net result for the seven States was a decline of 46 millions. Local debts were reduced in each of the States. The heaviest decreases in local debts were 75 millions in Florida, 38 millions in Georgia, 28 millions in North Carolina, and 27 millions in Mississippi. For the 48 States a 12 percent reduction in local debts from 1932 to 1937 was entirely offset by an increase in State debts.

On State debts in particular, interest rates have been reduced sharply during the past few years, although they continue to be higher than the national average. The State of Tennessee for example had outstanding on June 30, 1940, a total of $9,498,000 of bonds issued between June 1, 1938, and January 1, 1940, and due after 1946, with an interest rate of from 1¼ to 3 percent.[12] In contrast, the State had outstanding $21,441,000 of 6 percent bonds issued in 1932 and 1933. The average interest rates on the State funded debts for 1938 were as follows: [13]

State:	*Average percentage rates*
Alabama	4. 3
Florida	(1)
Georgia	5. 9
Mississippi	4. 3
North Carolina	4. 3
South Carolina	4. 0
Tennessee	4. 5
Total 48 States	3. 8

[1] No debt.

The Structure of Government

A description of governmental structure in the Southeastern States is made difficult by the absence of a regional character to such a structure. There is nearly as much diversity in State constitutions, State organization, State-local relations, and local organization among the seven States of the Southeast as among the 48 States of the Nation. In most aspects of governmental organization the seven States constitute a cross-section of the Nation, rather than a regional entity.

Nevertheless, a number of forces are beginning to bear upon the region's governmental structure. One of these, by no means peculiar to the Southeast, is the emergence of a new Federal-State relationship during

[12] *Annual Report of the Comptroller of the Treasury*, July 1, 1939, to June 30, 1940.

[13] *Financial Statistics of States*, 1938.

the past decade, recently accelerated by the necessities of a national defense program. While most attention has been centered on an expansion of Federal functions and activities, the majority of Federal programs can be successful only with the cooperation and assistance of Government at the State level. Also in evidence is a growing spirit of cooperation between governments. At the State level a good example of this is the Southeastern Governor's Conferences to discuss and publicize issues of regional interest. At the local level there are joint county and county-city arrangements for public health, library, and public utility services, among others. Another situation affecting governmental structure grows out of extreme variations in ability within the Southeast to support local government, with an accompanying concept of State responsibility for a measure of equalization in the quality of local services. State payments to local subdivisions in the seven States increased 102 percent between 1932 and 1938, and the field of direct State operations has generally been enlarged.

For these local governments which wish to preserve their autonomy as well as their financial standing, the rise in State subventions and State administration of functions has been a disturbing trend. Generally, State aid is accompanied by State controls over local policies. An outstanding exception is the distribution of State gasoline tax receipts among counties for road purposes. With only nominal State control over their expenditure, these large items of revenue tend to bolster considerably the political and administrative importance of county governments. How to preserve a reasonable measure of local autonomy and at the same time make adequate provision for essential local services is one of the more perplexing problems of intergovernmental balance which the region must solve. Complicating the situation is the danger of perpetuating small governmental units which might better be merged with neighboring jurisdictions. The problem facing counties in Virginia, applying generally to the Southeastern States also, has been well summarized as follows:

> Present trends indicate one of two ultimate solutions of the problem created by the existing conditions of the counties. One of these is State centralization, involving a redistribution of functions and the assumption of the more important services by the State. The other is the combination of local functions under local control and the extension of local areas to include sufficient taxable wealth to support the services essential to modern community life.[14]

While it is impossible to provide in brief form a comprehensive description of governmental structure in the Southeast, a few of the more important structural elements are touched upon in the following pages. Under State government these include constitutions, administration, and legislative assistance. Under local government, points include internal organization, size of counties, local legislative acts, and financial problems.

State Government

Constitutions.—The original purpose of State constitutions was to set out general principles and guard against excesses of the legislative or executive branches of government. No one has been able to define exactly where safeguards stop and needless barriers to progressive policy begin, because so many circumstances and philosophies influence the line of demarcation. It is necessary for each State to strike the proper balance for itself. However, all State constitutions including those of the Southeast contain provisions which, in subject matter and detail, might more properly be left to legislative discretion. Their inclusion in the constitution either prevents changes which the majority of the people believe are needed or makes legislation by constitutional amendment a common practice, depending on whether amendments are difficult or easy to attain. The very length of some constitutions (that of Georgia has some 35,000 words) suggests too much detail. The constitutions of North Carolina and Tennessee, both under 9,000 words, are much more appropriate with respect to length, although both contain provisions essentially legislative in character.

The only means for revising constitutions effectively is through constitutional conventions, called either by legislative action or by referendum. All States of the Southeast except Mississippi have some such provision for general revisions, but no convention has yet been called since adoption of the present constitutions from 40 to 75 years ago. The nearest approach in recent years was a commission appointed by the Governor of North Carolina in 1931, which reported a revised draft of the constitution.[15] The legislature, however, took no action on the suggested revision.

Specific amendments are in most States much easier to obtain; in fact South Carolina and Georgia with 159 and 269 amendments, respectively, find that constitutional detail has made the amending process a necessary and facile supplement to the legislative process. The other extreme is Tennessee, whose record of no amendments since 1870 is unique for the entire country.

State administration.—Some of the Southeastern States, notably Tennessee, Georgia, and Alabama, have taken steps to improve their administrative structure. The constitutional difficulties to State reorganization are quite formidable, and there is no minimizing the fact that constitutions must be amended before com-

[14] *Report of Virginia Commission on County Government*, December 1931, p. 15.

[15] *The Report of the North Carolina Constitutional Commission*, 1932.

plete reorganization can become effective. It must be recognized too that reorganizations on paper are sometimes only a reshuffling in practice. There is no such thing as a final, complete reorganization; instead, a continuing reexamination of the State operating structure in the light of current administrative needs is always necessary.

Tennessee, in its reorganizations of 1923 and 1937, has gone farther than any Southeastern State in establishing the governor as the single administrative head of the State government. This has been accomplished by creating single department heads, appointed and removable by the governor. Provision is made for a governor's cabinet and for reorganization of administrative agencies by executive order. The Alabama reorganization of 1939 also provides single department heads selected by the governor, but covers a smaller administrative area than that of Tennessee. Under the Georgia reorganization of 1931, chief reliance continues to be placed on commissions and on department heads elected by the people, rather than on single department heads responsible directly to the governor. Other Southeastern States have made little or no progress in creating a strong executive, in spite of recommendations to that effect by various survey groups who have studied their governmental framework.

A central theme of all reorganization programs is to reduce the number of independent or semi-independent agencies by combining them into a relatively few departments on a functional basis. The Tennessee and Georgia reorganizations have gone far toward achieving this: Tennessee now has only 10 major departments and Georgia has reduced its entire administrative network from 90-odd commissions, boards, and bureaus to 19 departments. The Alabama reorganization was partially successful in its functional integration, although approximately 100 independent agencies are said to have continued in existence.[16]

All States of the Southeast have at least rudimentary staff services—finance, personnel, and law. However, in many States the exact position of such agencies between the chief executive and the operating departments has remained rather tenuous. Alabama is the only State which now accords financial administration—including budgeting, accounting, and purchasing—full departmental status. The same State has also created a department of personnel in charge of administering a new State merit system. Georgia, North Carolina, and Tennessee have variously placed financial and personnel functions in the governor's office, but the remaining three States of the Southeast have no executive budget and staff services are dispersed among the various operating agencies. Although the attorney-general performs a staff function as legal counsel, no State of the Southeast and few States in the country provide for filling the office through executive appointment.

Legislative Assistance.—One of the most difficult problems of government is to provide legislators with the tools for enacting wise laws. Most of the subjects dealt with by modern lawmakers require expert assistance and fact-finding facilities before decisions regarding policy can be made. In the Southeastern States as elsewhere, this need has been recognized and partially met by administrative sponsorship of important legislation. Only a jealous guarding of legislative powers, however, prevents executive sponsorship of bills from becoming in effect executive formulation of policy, rubber-stamped by the legislature.

One effective way for the popular representatives to retain control over policy is to have facilities for advice independent of the executive branch. Such assistance has heretofore been obtained almost exclusively from committee hearings and lobbies, both effective and useful, but both having the limitations of bias and special interest.

In recent years a number of States have created legislative councils. Their purpose is to prepare advance information on important problems likely to confront the next legislative session. Usually they include a few members of each house, with a paid research staff. No Southeastern State as yet has set up a legislative council, although they have functioned in the neighboring States of Kentucky and Virginia since 1936. In these States they already have become a valuable addition to the legislative process.

State planning boards have been established in all the Southeastern States, and are equipped with technical information to provide legislative guidance on such important subjects as land and water resources, industries, transportation, and defense problems. Thus far State boards have acted principally as advisory groups to the executive branch; legislation based on planning board studies and recommendations is generally administration bills, and planning board assistance to legislators is generally channeled through the executive. More direct relations between legislature and planning board would facilitate the advice and assistance which planning boards are well qualified to provide in the law making process.

In most States of the country, the legislative reference service has become an indispensable aid to legislators, providing research, library, and bill drafting facilities and being directly responsible to the legislative branch. The Southeastern States have lagged behind other

[16] Roscoe C. Martin, "Alabama's Administrative Reorganization of 1939," *The Journal of Politics*, November 1939. See also W. H. Combs and W. E. Cole, *Tennessee: A Political Study* (1940), C. B. Oosnell, *Government and Politics in Georgia* (1936), and W. V. Holloway and C. W. Smith, *Government and Politics in Alabama* (1941).

sections in providing this service; North Carolina has gone farthest with a Division of Publications in the office of the Secretary of State, devoted exclusively to legislative research and bill drafting. Georgia also has a legislative reference department in conjunction with the State library. Most Southeastern States have delegated the work of bill drafting to the attorney-general's office and have not yet placed library and research services at the disposal of their legislators.

Governor Dixon, in his message to the 1939 session of the Alabama legislature, recognized the need for legislative assistance and made recommendations to this end. However, the bill submitted failed of enactment. The governor's statement might be equally applicable to the situation in other Southeastern States: [17]

> One of our greatest lacks in Alabama is planning. Under our present system the Legislature has no tools with which to work; no organization on which it may rely for information; no assistance of any kind in the performance of its duties. I recommend the establishment of a Division of Legislative Service, charged with the duties of studying the operation of our laws, making such other studies as may be demanded, drafting legislation at the request of members of the Legislature, and cooperating in every way with the Legislative Council.
>
> I also recommend the establishment of a Legislative Council composed of a limited number of members of the House and Senate and charged with the functions of suggesting research studies to the Division of Legislative Service, examining the effects of constitutional provisions and statutes and recommending amendments, and preparing such a legislative program as the welfare of the State requires. In this manner we can bring about some planning for the State and greatly assist the Legislature in its work. A bill has been prepared bringing about these results. It will be submitted for your consideration, and I recommend its adoption.

Local Government

The structure of local government in the Southeast is much the same as that found in other areas, but perhaps it is less complicated. In the Southeast, as in the South generally, the county assumes considerable significance as a unit of local government. This is particularly true in the rural areas where neither the town nor township exists as a unit of government and where, with the exception of Mississippi and Florida, few special districts have been created to complicate the local governmental structure. For approximately two-thirds of the population, therefore, the county is practically the only unit of local government.

While local government is less complicated in the Southeast than in some other areas, cities and counties are nevertheless faced with fundamental problems, due in large measure to their inadequacy of organization and resources relative to the functions required of them.

[17] Message of Governor Frank M. Dixon to the Legislature of Alabama, *General Acts Alabama*, Regular Session, 1939.

Internal Organization.—The governmental structure of the county has undergone little change since its colonial beginnings. As one authority has observed, "County government is a patchwork of independent, elected officers, boards, and commissions." [18] The governing body, consisting of more than 50 members in some Tennessee counties, and elected by districts in most States, has no executive head and has very limited control over county affairs. In all the States direct election of a large number of administrative officials disperses executive responsibility and reduces the probability of qualified office holders.

Two Southeastern States, Georgia and North Carolina, have general statutes authorizing counties to adopt new forms of county government. The Georgia statute provides for a modified form of county manager government with a manager who is to act as chief executive of the county governing body. While this statute was enacted in 1922 no Georgia county has taken advantage of its provisions, although rather complete centralization of administrative authority has been secured in several Georgia counties through special acts. North Carolina's county manager law was passed in 1927. A manager appointed by the governing body is authorized "to appoint, with the approval of the county commissioners, such subordinate officers, agents, and employees for the general administration of county affairs as the board may consider necessary." [19] Several counties have taken advantage of the act, but only one, Durham County, has appointed a real chief executive and has been recognized therefore as a manager county. In Tennessee, Hamilton County recently secured a limited form of county manager government, through a special act of the legislature.

Municipal government, on the other hand, has undergone important changes since Lord Bryce's observation that it was "the one conspicuous failure of the United States." The present day mayor-council form of government is the most common form of municipal organization in the Southeast, as elsewhere. The council-manager plan, which is available to municipalities in all the Southeastern States except Mississippi, has been responsible for many of the improvements in municipal government.[20] Other modernizing movements such as civil service, centralized purchasing, sound budgeting and accounting procedures have made much greater headway in cities than in counties.

Size of Counties.—In addition to its antiquated structure, rural local government in the Southeast suffers because of inadequate area. Counties were

[18] Arthur W. Bromage, *American County Government*, New York, 1933, p. 8.

[19] North Carolina *Public Laws*, 1297, ch. 191.

[20] The *Municipal Yearbook* for 1941 lists the cities in the Southeastern States with approved council-manager governments as follows: Florida, 39; Georgia 19; North Carolina, 19; South Carolina, 5, and Tennessee, 7.

laid out when means of transportation were difficult and it was necessary to place county seats at frequent intervals in order to be readily accessible to the population. Another condition favoring numerous counties was the fact that the functions counties were called upon to undertake were few in number and relatively inexpensive to perform.

The situation today is vastly different. Improved means of communication and transportation makes unnecessary the maintenance of a county seat every few miles. What is more important, the cost of government is such that the smaller counties, designed for a "horse and buggy" era, cannot meet expenses from their own resources. As a result of increased demands for highways, improved educational facilities, health protection, public welfare, and other services, a large number of the counties as they now exist are economically unsound. They must rely upon increasing State aid to make ends meet.

The only way to reduce the number of counties is through consolidation and the only examples of successful action in the United States are found in the Southeast. In Tennessee the rural county of James was annexed to Hamilton County (Chattanooga) in 1919. In 1932 a tri-county consolidation became effective in Georgia when Campbell and Milton counties were merged with Fulton County, Ga. Although proposals for the consolidation of counties have frequently been advanced and are currently under consideration in several of the Southeastern States, the two consolidations in Georgia and Tennessee are the only ones that have yet been effected.

Local Legislative Acts.—Another problem of concern to local governments in the Southeast deals with State legislative interference in matters of local interest. In most of these States, rather than delegate powers to local units through general acts, the legislatures adopt acts relating to individual local units as the demand arises. As a consequence, each legislative session is concerned to a large extent with local legislation. In Tennessee, for example, of the more than seven hundred bills passed by the 1941 legislature, three-fourths were private acts dealing with individual counties and cities. Local legislation also places a heavy burden upon the legislative bodies in Alabama, Georgia, Florida, and North and South Carolina, and makes difficult a proper consideration of bills dealing with matters of State-wide concern.

While local acts are generally formulated by each local legislative delegation, the delegation occasionally does not reflect the desires of the local unit concerned. The legislative body generally, but not always, follows the recommendations of each local delegation with respect to local acts, depending somewhat upon the latter's political position. Sometimes, in order to secure his local legislation, the individual member may be compelled to take action on general legislative matters contrary to his best judgment. "Each member realizes that he must, to some extent, trade his vote on other bills in order to obtain his local laws. He further realizes that he must obtain his local legislation or lose his political prestige. Occasionally political malice is injected, and a county may lose much desired legislation because its representatives have not played political cards to the satisfaction of the powers that be." [21]

Mississippi is one of the States where steps have been taken to correct the evils of local legislation. The constitution directs the legislature to deal with local units through general acts. The result has been that the legislative body has for the most part been able to devote its attention to matters of State-wide concern. The other States could, without constitutional change, reduce the volume of local legislation by granting to county and city governments authority to act in matters of local concern.

Expansion of Functions.—In spite of a general tendency toward State assumption of responsibility for public services, local governments of the Southeast have had a tremendous growth. Traditional local functions, particularly education, streets and roads, and public welfare have been extended. Newer functions are appearing—libraries, housing, zoning, public health, recreation, industrial programs, and publicly owned utilities among others. Most of the new or expanded activities of local governments are tied in with State or Federal programs. The intergovernmental relationships that have been established in connection with these programs thus recognize the desirability of a joint responsibility and participation for their successful execution.

As a case in point, the Tennessee Valley Authority, a Federal agency charged with a program of regional development, depends in large measure upon the cooperation of local governmental agencies for the ultimate success of its efforts. Around the major TVA construction projects contractual arrangements have been made for provision of public health services, libraries, schools, and for road readjustments. Contacts have been established with local planning commissions for the adjustment of communities affected by TVA reservoirs, for the development of recreation and water transportation facilities on TVA lakes, and for meeting critical problems in local defense areas. The agricultural program of the Authority depends upon the cooperation and assistance of county agricultural agents. Another phase of the Authority program has been implemented

[21] Harry J. Green, *A Study of the Legislature of the State of Maryland*, Baltimore, The Johns Hopkins Press, 1930, pp. 65–66.

by contracts with some 80 municipalities and counties for the distribution of electric power. The effect of these and other relationships between Authority and local governments has been to expand the scope of activities of local agencies and to make possible their participation in the region's developmental activities.

Financial Administration.—The most difficult problem of the average local governmental unit in the Southeast is financial. It is true that the increased local governmental activities have largely been financed by substantial increases in State and Federal aid. However, higher standards generally must be maintained to be eligible for assistance and the procedure of matching funds is frequently used. The outside aid, therefore, has resulted in little relief to local tax sources, although great improvements have been made in the quality and range of public services rendered.

Because of declines in local tax revenues, a large number of local jurisdictions have been compelled to go in debt for current operations as well as for capital improvements. Inadequate provisions for meeting term bonds upon maturity have made resort to debt refunding a common necessity. In the smaller counties and municipalities particularly, a lack of proper budgeting and long range financial planning, together with high costs for administration and debt refinancing, have contributed further to an unsound financial condition.

In some of the Southeastern States, notably North Carolina, State agencies have been established to assist and guide local governmental units in financial matters. The North Carolina Local Government Commission, created in 1931, has been concerned primarily with the approval and marketing of bonds, and the negotiation of refinancing plans for local units of government. That the Commission has been of value to local units may be evidenced by the fact that between 1932 and 1940 there was a net reduction of the bonded indebtedness of local government of $56,000,000. A recent observation on the work of the Commission indicates that it "has done much to rehabilitate local government credit in North Carolina, and in the future it should be able to prevent a recurrence of the chaotic conditions that characterized local finance in the early years of the depression." [22]

There is likelihood that the future will see additional State guidance and control over local finances in the Southeast. A growing State interest in and responsibility for such local matters as property tax assessment and collection, accounting and auditing control, budgeting and purchasing procedures, and debt planning are being reflected in general State legislation, both mandatory and permissive.

[22] James W. Fesler, "North Carolina's Local Government Commission," *National Municipal Review*, June 1941, p. 334.

Governmental Reporting and Research

With some notable exceptions, the operations of particular institutions of government in the Southeast have not been adequately reported to the public. Statistics and factual data relating to many governmental functions have been difficult to secure. This has been true in general at the State level, and the inadequacy of reporting has been even more noticeable at the local level. The lack of data has greatly hampered objective appraisal of the functioning of government and has contributed to a lack of research on the conduct of public affairs.

In recent years, however, striking progress has been made in a number of instances, as evidenced by the establishment of new research agencies, the expanded programs of existing ones, and by the appearance of a number of studies of government in the area. Reports of State departments have increased in both number and quality; many local units are becoming interested in adequate reporting to their citizens.

The universities and colleges of the area are developing programs designed to focus attention on the problems of State and local government. In 1938 the University of Alabama established the first Bureau of Public Administration in the area. This bureau is engaged in research on governmental problems and provides consulting services for governmental officials and agencies in the State. Similar research activities are being carried on by others of the region's colleges and universities. Existing courses in government and public administration have recently been expanded and new ones added.

The Tennessee Valley Authority has cooperated with local agencies in the preparation of reports on municipal government in four of the seven Southeastern States and has itself published a study of county government in the area. These and other recent studies are creating a regional literature on government of growing importance. Conferences on governmental problems are receiving increasing attention, and some of them, such as the Southern Institute of Local Government, sponsored by the University of Tennessee, have been put on a permanent basis.

State leagues of municipalities organized in all of the States have facilitated the exchange of information concerning municipal administration and have made possible the utilization of the services of national organizations endeavoring to improve the practices of government throughout the country.

Programs for Government Development

The improvement of government, as well as broader considerations of the role of government, are essential to any program for regional development. Government deserves careful attention in its own right as an economic factor of considerable magnitude in the region. It employs thousands of persons, withdraws a sizeable portion of the regional income as taxes, and creates an even larger part of the regional income through its expenditures. Far more important, however, is the concept of government as a means to an end, the end being to create more satisfactory conditions under which people live and work. Government is the most important single instrumentality for regional development and is the only channel through which the common will can be effectively exercised. Its problems of organization, functioning, and financing, therefore, become an integral part of the regional scene.

The national emergency is imposing new responsibilities upon Federal, State, and local governments. The new functions and responsibilities, which government assumes as the region's resources are devoted to meeting this emergency, bring problems of an immediate and urgent nature. The readjustment to a peacetime economy after the emergency has passed is likely to demand still more of government without the spur of national military necessity. Our institutions of government must be strong for the future which lies ahead of them, to discharge their responsibilities and at the same time preserve and give new meaning to the democratic method.

Improvements in the field of government and public administration depend upon active and intelligent citizen participation—not mere passive consent. A constructive program for the Southeast requires a continuing examination of governmental problems in each State, county, and municipality, and an understanding by the people not only of the principles of government but of how principles can be adapted to conditions deeply rooted in their community life. Experiences in the Southeast and elsewhere show that the failure of reform movements to achieve their goals can frequently be attributed to lack of an informed and widespread participation. The citizens either have not been convinced of the importance of government in their daily lives or have not realized that people can demand and secure an efficient organization of government and a high standard of public administration.

One condition which must be faced in any plan for governmental development in the Southeast is the diversity of existing governmental structures. The governmental organization of the area is more a cross-section of the Nation than one possessing particular regional characteristics. Governments tend to be the product of the people governed, affected by important differences in people's background and environment. The resulting variations in constitutions, administrative frameworks, tax systems, and State-local relations within the region do not respond readily to governmental principles which are incapable of adjustment to local conditions. A plan for governmental development in the Southeast must be really a series of plans, each based on separate surveys, and each seeking active local support.

The attitudes and institutional patterns of the region are a second consideration to governmental development in the Southeast. A lack of active participation in government, frequently cited as a regional characteristic, reveals an inadequate emphasis upon education for citizenship. Partly this reflects a need for government to report fully and effectively its operations to its citizens. Partly it reflects a need for revision of public school curricula and more adequate governmental study and research by universities and other institutions. A contributing influence on public attitudes has also been economic and social conditions affecting large groups of the region's people.

The third condition affecting plans for governmental development in the Southeast is low regional wealth and income. A large number of rural areas have found themselves unable to finance education, public health, highways, welfare, and other essential services from local tax resources. The depressed economic status of such areas makes the need for many types of public service even greater. Where State-local fiscal relations have failed to take this situation properly into account, an extremely difficult financial problem is being faced by the local jurisdictions.

The growing reliance of local government on State and Federal aid and the growing evidence of the uneconomic size of many local jurisdictions present a major public issue. Federal and State financial support probably must carry with them Federal or State control that will always raise questions of local autonomy, particularly in those jurisdictions which rely most heavily on this outside aid. The problem of the size of local governmental jurisdictions is one that deserves careful and unbiased consideration. Would larger counties, counties which combined centers of population and industry with rural areas, or merely a merger of jurisdictions which are predominantly rural, give greater economic and financial strength to local governments and win stronger approval and support from the public? Unless something can be done along this line toward strengthening local jurisdictions, the alternative appears to be growing State support and control of education, highways, and health service or perhaps the full transfer of these functions away from

local jurisdictions. This general problem appears to be more urgent in the Southeast than elsewhere in the Nation.

No detailed plan for a development program in the field of government is offered here because of the variety of conditions which prevail and the need for adjusting any plan to specific situations. However, four general lines of endeavor can be recommended for each State and a majority of local jurisdictions. One is improved public reporting, with a fresh appeal to citizen interest as well as conciseness and accuracy. Another is further research and study of governmental problems by the region's institutions and organizations, a few of which problems have been briefly highlighted in this study. Still another activity is a further awakening of civic responsibility—including voting and otherwise participating in governmental processes—through public education. The fourth line of endeavor is the improvement of the region's economic base for the financial support of government.

Programs for regional development, including those now being undertaken in the Tennessee Valley area and those being proposed for the seven Southeastern States, contain the ingredients necessary for strengthening and improving government. Both must enlist the fullest and wisest use of the region's people, institutions, and governments if the programs are to succeed. One product of developmental programs will be increased economic strength for both people and government. Another product, because the method of development relies upon widespread cooperation and participation by the region's people and governmental institutions, is an increased responsibility of citizens for their government and of government for its citizens. To the extent that programs of development bring economic strength to the region, and stimulate a maximum participation in the common enterprise, improvements in the forms and processes of government should more readily follow.

APPENDIX

TABLE I.—*Summary of production estimates: Alabama*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production		Percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Number of farms	Number.	232	220	215	−5	−7
Total cropland	Acres	8,224	8,218	8,618	0	5
Plowable pasture	Acres	2,174	2,215	3,168	2	46
Woodland in farms	Acres	7,009	6,996	6,032	0	−14
All land in farms	Acres	19,143	19,095	19,238	0	0
Corn (all purposes)	Acres	3,450	3,477	2,953	1	−14
Corn (grain)	Bushels	31,028	41,445	50,246	34	62
Cotton	Acres	1,931	1,773	1,754	−8	−9
Do	Bales	773	786	1,149	2	49
Tobacco	Acres	1	1	35	0	3,400
Do	Pounds	293	302	35,000	3	1,095
Irish potatoes	Acres	48	54	118	12	146
Do	Bushels	4,285	5,283	12,204	23	185
Sweet potatoes	Acres	79	98	146	24	85
Do	Bushels	5,810	9,115	14,172	57	144
Wheat	Acres	5	22	113	340	2,160
Do	Bushels	53	228	1,354	330	2,454
Oats for grain [3]	Acres	109	202	1,039	85	853
Do. [4]	Bushels	2,306	4,026	28,468	75	1,135
Other small grains	Acres	0	7	135	[5]	[5]
Total hay	Acres	819	948	1,786	16	118
Do	Tons	605	740	2,003	22	231
Peanuts for nuts and oil	Acres	270	360	270	33	0
Do	Pounds	128,250	252,000	189,000	96	47
Peanuts hogged off	Acres	255	270	433	6	70
Soybeans for beans	Acres	18	22	16	22	11
Do	Bushels	108	132	96	22	11
Tomatoes	Acres	[6] 3	6	7	100	133
Do	Bushels	[6] 270	540	630	100	133
Other commercial vegetables.	Acres	19	24	35	26	84
Total cattle	Number.	890	967	1,542	9	73
Beef and veal production	Pounds	137,792	150,020	219,730	9	59
Cows and heifers, milked	Number.	327	367	598	12	83
Milk production	Gallons	126,855	143,059	265,295	13	109
Hogs and pigs	Number.	752	825	1,440	10	91
Pork production	Pounds	121,834	136,895	265,350	12	118
Sheep and lambs	Number.	32	26	53	−19	66
Mutton and lamb production.	Pounds	394	576	1,372	46	248
Wool production	Pounds	112	94	360	−16	221
Horses, mules and colts	Number.	354	349	374	−1	6
Chickens	Number.	5,951	6,769	9,597	14	61
Egg production	Dozen	33,473	39,660	78,622	18	135

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.
[5] No base for calculating percentage change.
[6] Acreage and production for 1939 are estimated.

TABLE II.—*Summary of production estimates: Florida*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production		Percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Number of farms	Number.	62	60	60	−3	−3
Total cropland	Acres	2,212	2,234	2,156	1	−3
Plowable pasture	Acres	642	798	1,244	24	94
Woodland in farms	Acres	2,650	2,847	2,761	7	4
All land in farms	Acres	8,338	9,020	9,020	8	8
Corn (all purposes)	Acres	704	763	803	8	14

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.

TABLE II.—*Summary of production estimates: Florida*—Con.

Item	Unit 1,000	1939 actual	Estimated acreages or numbers and production		Percentage change from 1939	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Corn (grain)	Bushels	5,191	7,296	10,730	41	107
Cotton	Acres	58	55	49	−5	−16
Do	Bales	11	17	18	55	64
Tobacco	Acres	28	16	16	−43	−43
Do	Pounds	20,222	12,385	15,800	−39	−22
Irish potatoes	Acres	22	33	33	50	50
Do	Bushels	2,628	4,220	4,220	61	61
Sweet potatoes	Acres	15	20	24	33	60
Do	Bushels	913	1,232	1,430	35	57
Oats for grain [3]	Acres	9	9	11	0	22
Do. [4]	Bushels	99	110	138	11	39
Total hay	Acres	84	91	222	8	164
Do	Tons	49	55	222	12	353
Peanuts for nuts and oil	Acres	85	113	100	33	18
Do	Pounds	37,400	70,625	65,000	89	74
Peanuts hogged off	Acres	242	290	303	20	25
Tomatoes	Acres	41	49	49	20	20
Do	Bushels	4,949	4,909	4,900	−1	−1
Other commercial vegetables.	Acres	133	166	166	25	25
Total cattle	Number.	721	911	837	26	16
Beef and veal production	Pounds	186,648	218,803	240,965	17	29
Cows and heifers, milked	Number.	90	106	173	18	92
Milk production	Gallons	29,491	35,350	65,540	20	122
Hogs and pigs	Number.	481	576	576	20	20
Pork production	Pounds	120,750	142,750	142,750	18	18
Sheep and lambs	Number.	21	17	11	−19	−48
Mutton and lamb production.	Pounds	734	600	415	−18	−43
Wool production	Pounds	61	52	33	−15	−46
Horses, mules and colts	Number.	56	54	51	−4	−9
Chickens	Number.	2,029	2,330	3,150	15	55
Egg production	Dozens	14,513	17,140	25,520	18	76
Grapefruit production	Boxes	15,800	30,970	23,975	96	52
Orange production	Boxes	27,800	47,278	31,200	70	12

[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

TABLE III.—*Summary of production estimates: Georgia*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production		Percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Number of farms	Number	216	206	202	−5	−6
Total cropland	Acres	10,177	10,298	11,140	1	9
Plowable pasture	Acres	1,513	1,677	2,380	11	57
Woodland in farms	Acres	10,175	9,477	7,965	7	−22
All land in farms	Acres	23,684	23,727	24,186	0	2
Corn (all purposes)	Acres	4,233	4,254	4,000	0	−6
Corn (grain)	Bushels	37,604	42,550	40,190	13	7
Cotton	Acres	1,856	1,734	1,690	−7	−9
Do	Bales	865	793	827	−8	−6
Tobacco	Acres	118	67	91	−43	−23
Do	Pounds	93,510	56,855	77,265	−39	−17
Irish potatoes	Acres	23	26	36	13	57
Do	Bushels	1,542	1,805	2,436	17	58
Sweetpotatoes	Acres	99	114	117	15	18
Do	Bushels	7,329	8,994	9,190	23	25
Wheat	Acres	153	184	296	20	93
Do	Bushels	1,505	1,930	3,160	28	109
Oats for grain [3]	Acres	432	684	1,632	58	278

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.

TABLE III.—*Summary of production estimates: Georgia*—Con.

Item	Unit 1,000	1939 actual	Estimated acreages or numbers and production		Percentage change from 1939	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Oats for grain [4]	Bushels	7,598	12,455	30,990	64	308
Other small grains	Acres	0	0	0	0	0
Total hay	Acres	960	1,283	2,448	34	150
Do	Tons	533	742	1,600	39	200
Peanuts for nuts and oil	Acres	650	845	650	30	5
Do	Pounds	341,250	591,500	455,000	73	33
Peanuts hogged off	Acres	423	480	700	13	65
Soybeans for beans	Acres	13	13	20	0	54
Do	Bushels	79	79	160	0	103
Tomatoes	Acres	6	7	6	17	0
Do	Bushels	330	385	330	17	0
Other commercial vegetables.	Acres	108	130	115	17	6
Total cattle	Number	803	974	1,110	21	38
Beef and veal production	Pounds	61,325	74,747	91,096	22	49
Cows and heifers milked	Number	305	340	456	11	50
Milk production	Gallons	117,838	125,766	185,500	7	57
Hogs and pigs	Number	1,125	1,241	1,622	10	44
Pork production	Pounds	283,368	341,400	481,538	20	70
Sheep and lambs	Number	17	14	10	−18	−41
Mutton and lamb production.	Pounds	243	225	205	−7	−16
Wool production	Pounds	45	39	30	−13	−33
Horses, mules, and colts	Number	351	327	315	−7	−10
Chickens	Number	5,871	7,430	9,185	27	56
Egg production	Dozen	31,616	40,190	51,510	27	63

[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

TABLE IV.—*Summary of production estimates: Mississippi*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production		Percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Number of farms	Number	291	281	214	−4	−27
Total cropland	Acres	8,000	7,994	7,825	−1	−1
Plowable pasture	Acres	3,921	4,187	5,924	7	51
Woodland in farms	Acres	6,060	6,356	5,837	5	−4
All land in farms	Acres	19,156	19,634	20,418	2	7
Corn (all purposes)	Acres	2,957	3,033	2,089	3	−29
Corn (grain)	Bushels	36,035	45,507	41,375	26	15
Cotton	Acres	2,450	2,205	2,186	−10	−11
Do	Bales	1,533	1,527	1,614	1	5
Soybeans for beans	Acres	72	131	256	92	256
Do	Bushels	648	1,768	4,736	173	631
Peanuts	Acres	30	45	75	50	150
Do	Pounds	13,319	25,877	55,700	94	318
Wheat	Acres	1	1	1	0	0
Do	Bushels	39	39	39	0	0
Oats for grain [3]	Acres	101	253	292	150	189
Do [4]	Bushels	4,185	12,222	15,610	192	273
Other small grain	Acres	2	2	2	0	0
Total hay	Acres	857	956	1,534	12	79
Do	Tons	1,042	1,176	2,206	13	112
Total cattle	Number	1,273	1,365	2,270	7	78
Beef and veal production	Pounds	191,670	205,172	341,065	7	78
Cows and heifers milked	Number	566	597	927	5	64
Milk production	Gallons	8,596	11,040	14,400	28	68
Hogs and pigs	Number	1,213	1,395	1,159	15	−4
Pork production	Pounds	208,125	239,082	196,593	15	−6
Sheep and lambs	Number	72	85	121	18	68
Lamb and mutton production.	Pounds	1,270	1,497	2,133	18	68
Wool production	Pounds	195	239	328	18	68
Horses, mules, and colts	Number	520	540	490	4	−6
Chickens	Number	7,467	8,173	9,257	9	24
Egg production	Dozen	37,416	47,187	68,173	26	82

[1] Data for peanuts, soybeans, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

TABLE V.—*Summary of production estimates: North Carolina*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production		Percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Number farms	Number	278	267	259	−4	−7
Total cropland	Acres	7,192	7,202	7,197	0	(3)
Plowable pasture	Acres	1,230	1,299	1,454	6	18
Woodland in farms	Acres	9,093	9,007	19,140	−1	110
All land in farms	Acres	18,445	18,795	19,140	0	4
Corn (all purposes)	Acres	2,458	2,645	2,480	8	1
Corn (grain)	Bushels	48,897	51,241	48,114	5	−2
Cotton	Acres	710	666	648	−6	−9
Do	Bales	458	387	376	−16	−18
Tobacco	Acres	775	513	584	34	−25
Do	Pounds	590,951	445,169	506,491	25	−14
Irish potatoes	Acres	81	88	86	9	6
Do	Bushels	8,326	8,337	8,043	0	−3
Sweet potatoes	Acres	69	89	104	29	51
Do	Bushels	6,725	8,832	10,351	31	54
Wheat	Acres	387	426	577	10	49
Do	Bushels	4,758	4,745	6,465	0	36
Oats for grain [4]	Acres	225	248	515	10	129
Do [5]	Bushels	4,449	4,930	10,210	11	129
Other small grains	Acres	56	58	126	4	125
Total hay	Acres	957	1,000	1,556	4	63
Do	Tons	832	868	1,350	4	62
Peanuts for nuts and oil	Acres	255	295	250	16	−2
Do	Pounds	290,700	333,350	282,500	15	−3
Peanuts hogged off	Acres	10	15	15	50	50
Soybeans for beans	Acres	161	180	165	12	2
Do	Bushels	2,012	2,178	1,996	8	−1
Tomatoes	Acres	2	4	3	100	50
Do	Bushels	88	164	141	86	60
Other commercial vegetables.	Acres	62	65	62	5	0
Total cattle	Number	540	607	777	12	44
Beef and veal production	Pounds	51,600	59,370	90,675	15	76
Cows and heifers milked	Number	310	344	474	11	53
Milk production	Gallons	143,429	151,658	207,652	6	45
Hogs and pigs	Number	709	840	880	18	24
Pork production	Pounds	271,734	322,062	337,645	19	24
Sheep and lambs	Number	46	59	60	28	30
Mutton and lamb production.	Pounds	1,866	2,391	2,450	28	31
Wool Production	Pounds	137	272	279	99	104
Horses, mules, and colts	Number	374	369	363	−1	−3
Chickens	Number	7,315	8,060	10,050	10	37
Egg production	Dozen	41,847	46,680	57,575	12	38

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Less than ½ of 1 percent.
[4] Includes cut ripe and fed unthreshed.
[5] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

TABLE VI.—*Summary of production estimates: South Carolina*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production		Percentage change from 1939 [2]	
			Expected 1943–45	Long-term desirable (tentative)	Expected	Long-term desirable (tentative)
Number farms	Number	138	132	132	−4	−4
Total cropland	Acres	4,926	5,071	5,241	3	6
Plowable pasture	Acres	604	638	757	6	25
Woodland in farms	Acres	4,863	4,772	5,075	−2	4
All land in farms	Acres	11,239	11,239	11,606	0	3
Corn (all purposes)	Acres	1,702	1,844	1,761	5	−1
Corn (grain)	Bushels	23,527	25,802	24,824	10	6
Cotton	Acres	1,177	1,103	1,078	−6	−8
Do	Bales	850	648	634	−24	−25
Tobacco	Acres	127	82	95	−35	−25
Do	Pounds	118,963	75,587	87,560	−36	−26
Irish potatoes	Acres	22	22	22	0	0
Do	Bushels	2,302	2,302	2,315	0	1
Sweet potatoes	Acres	54	57	61	6	13
Do	Bushels	4,938	5,320	5,667	8	15

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.

TABLE VI.—*Summary of production estimates: South Carolina*—Continued

Item	Unit 1,000	1939 actual	Estimated acreages or numbers and production: Expected 1943–45	Estimated acreages or numbers and production: Long-term desirable (tentative)	Percentage change from 1939: Expected	Percentage change from 1939: Long-term desirable (tentative)
Wheat	Acres	182	196	231	8	27
Do	Bushels	2,122	2,030	2,383	−4	12
Oats for grain [3]	Acres	519	548	879	6	69
Do [4]	Bushels	12,109	12,089	19,447	0	61
Other small grains	Acres	24	25	53	4	121
Total hay	Acres	519	547	1,025	5	97
Do	Tons	405	462	931	14	130
Peanuts for nuts and oil	Acres	16	23	20	44	25
Do	Pounds	11,840	15,778	13,720	33	16
Peanuts hogged off	Acres	6	7	10	17	67
Soybeans for beans	Acres	20	20	20	0	0
Do	Bushels	130	130	130	0	0
Tomatoes	Acres	7	9	8	29	14
Do	Bushels	350	585	520	67	49
Other commercial vegetables	Acres	66	70	66	6	0
Total cattle	Number	275	313	576	14	109
Beef and veal production	Pounds	32,404	34,605	65,585	7	102
Cows and heifers milked	Number	143	170	336	19	135
Milk production	Gallons	58,800	70,478	137,882	20	134
Hogs and pigs	Number	439	482	737	10	68
Pork production	Pounds	131,506	144,314	215,727	10	64
Sheep and lambs	Number	7	8	9	14	29
Mutton and lamb production.	Pounds	251	279	307	11	22
Wool production	Pounds	26	30	32	15	23
Horses, mules and colts	Number	201	202	201	0	0
Chickens	Number	3,376	3,711	7,384	10	119
Egg production	Dozen	17,234	19,459	38,918	13	126

[3] Includes cut ripe and fed unthreshed.
[4] Bushel threshed and bushel equivalent for that cut ripe and fed unthreshed.

TABLE VII.—*Summary of production estimates: Tennessee*

Item	Unit 1,000	1939 [1] actual	Estimated acreages or numbers and production: Expected 1943–45	Estimated acreages or numbers and production: Long-term desirable (tentative)	Percentage change from 1939 [2]: Expected	Percentage change from 1939 [2]: Long-term desirable (tentative)
Number of farms	Number	248	240	228	−3	−8
Total cropland	Acres	7,612	7,309	6,689	−4	−12
Plowable pasture	Acres	3,543	3,704	4,493	5	27
Woodland in farms	Acres	5,219	5,095	5,245	−2	4
All land in farms	Acres	18,493	18,197	18,675	−2	1
Corn (all purposes)	Acres	2,584	2,490	2,072	−4	−20
Corn (grain)	Bushels	54,905	55,150	59,323	0	8
Cotton	Acres	677	638	616	−6	−9
Do	Bales	436	424	488	−3	12
Tobacco	Acres	118	107	103	−9	−13
Do	Pounds	109,418	106,305	114,690	−3	5
Irish potatoes	Acres	42	50	72	19	71
Do	Bushels	3,204	4,170	8,044	30	151
Sweetpotatoes	Acres	38	45	59	18	55
Do	Bushels	3,104	4,432	6,428	43	107
Wheat	Acres	339	393	456	16	35
Do	Bushels	3,886	4,872	7,491	25	93
Oats for grain [3]	Acres	80	150	431	88	439
Do [4]	Bushels	1,445	3,101	12,960	115	797
Other small grains	Acres	97	94	189	−3	95
Total hay	Acres	1,852	2,103	2,300	14	24
Do	Tons	2,068	2,409	3,184	16	54
Peanuts for nuts and oil	Acres	5	4	4	−20	−20
Do	Pounds	3,404	2,850	3,300	−16	−3
Peanuts hogged off	Acres					
Soybeans for beans	Acres	29	36	36	24	24
Do	Bushels	209	230	300	10	44
Tomatoes	Acres	12	18	21	50	75
Do	Bushels	1,080	1,725	2,100	60	94
Other commercial vegetables.	Acres	14	17	25	21	79
Total cattle	Number	1,109	1,188	1,479	7	33
Beef and veal production	Pounds	98,001	107,986	145,890	10	49
Cows and heifers milked	Number	508	566	727	11	43

[1] Data for peanuts, soybeans, tomatoes, and other commercial vegetables are from Agricultural Marketing Service. Beef, pork, and mutton production estimates are based on the 1935 Adjustment Study. All other items are from the Census.
[2] Assumes utilization of alternatives. No one change independent of others.
[3] Includes cut ripe and fed unthreshed.
[4] Bushels threshed and bushels equivalent for that cut ripe and fed unthreshed.

TABLE VII.—*Summary of production estimates: Tennessee*—Con.

Item	Unit 1,000	1939 actual	Estimated acreages or numbers and production: Expected 1943–45 1943–45	Estimated acreages or numbers and production: Long-term desirable (tentative)	Percentage change from 1939: Expected	Percentage change from 1939: Long-term desirable (tentative)
Milk production	Gallons	204,564	239,478	364,390	17	87
Hogs and pigs	Number	1,062	1,102	1,150	4	8
Pork production	Pounds	223,150	239,982	254,392	8	14
Sheep and lambs	Number	358	426	536	19	50
Mutton and lamb production.	Pounds	11,195	14,264	24,610	27	120
Wool production	Pounds	1,368	1,664	2,897	22	112
Horses, mules, and colts	Number	451	416	403	−8	−11
Chickens	Number	8,013	9,621	10,819	20	35
Egg production	Dozen	46,606	62,688	85,921	35	84

TABLE VIII.—*Savings by use of the Tennessee River*

[Estimated savings in transportation charges on traffic that would be moved between Atlanta and northern-western points; traffic destined to Atlanta]

Classes and commodities	Originating at	Average savings per ton
UPBOUND		
Animals and animal products: Milk, canned	Chicago, Ill	$2.72
Vegetable food products:		
Beans, dried	Denver, Colo	1.62
Canned fruits and vegetables	Chicago, Ill	2.60
Do	Louisville, Ky	.94
Do	Indianapolis, Ind	.94
Do	Winona, Miss	3.20
Beer	Louisville, Ky	.82
Other alcoholic liquors	Cincinnati, Ohio	.86
Do	Indianapolis, Ind	1.60
Do	Lawrenceburg, Ind	.86
Do	Louisville, Ky	1.66
Do	Pekin, Ill	3.36
Do	St. Louis, Mo	3.32
Grain:		
Corn	Kansas City, Mo	2.30
Do	St. Louis, Mo	.89
Wheat	do	.89
Grain products:		
Flour	Davenport, Iowa	1.88
Cereals	Cedar Rapids, Iowa	2.88
Do	Chicago, Ill	2.35
Do	Battle Creek, Mich	1.44
Preserves	Chicago, Ill	2.60
Sirup	Cedar Rapids, Iowa	1.68
Vegetable oils and fats	St. Louis, Mo	1.68
Vegetable products, inedible: Oil, linseed	Minneapolis, Minn	3.68
Wood and paper:		
Furniture	Peru, Ind	1.60
Do	Louisville, Ky	3.19
Do	Richmond, Ind	1.67
Do	Kankakee, Ill	6.48
Paper:		
Printing	Cincinnati, Ohio	.54
Do	Indianapolis, Ind	2.06
Do	Kalamazoo, Mich	3.50
Do	Port Edward, Wis	2.16
Do	Stevens Point, Wis	2.16
Wrapping	St. Louis, Mo	3.40
Do	Wheeling, W. Va	1.51
Paper, not otherwise specified	Chicago, Ill	5.48
Do	Minerva, Ohio	1.13
Do	Plainwell, Mich	3.50
Paper products	Middletown, Ohio	1.08
Do	Menasha, Wis	5.48
Do	Chicago, Ill	4.32
Pulpboard	Franklin, Ohio	1.75
Do	Middletown, Ohio	.87
Nonmetallic minerals:		
Glass, window	Toledo, Ohio	.62
Other glass	Pittsburgh, Pa	1.63
Jars, fruit	Muncie, Ind	.67
Ores, metals, and manufactures of:		
Iron and steel products:		
Bar, sheet and structural	Pittsburgh, Pa	1.54
Do	Wheeling, W. Va	1.54
Pipe and pipe fittings	Pittsburgh, Pa	1.54
Wire products	Wheeling, W. Va	1.54
Plumbers earthenware	Robinson, Ill	2.44
Do	Kokomo, Ind	.84
Ware, enameled	Louisville, Ky	1.23
Do	Sheboygan, Wis	3.52
Stoves, ranges, and heaters	Detroit, Mich	.68
Do	Lansing, Mich	.78
Do	St. Louis, Mo	3.04
Do	Chicago, Ill	3.12
Miscellaneous	Charleston, W. Va	1.54
Do	Shelby, Ohio	1.37

TABLE VIII.—*Savings by use of the Tennessee River*—Continued

Classes and commodities	Originating at	Average savings per ton
Machinery and vehicles:		
Agricultural implements and parts	Louisville, Ky	$1.34
Automobiles and auto trucks	Detroit, Mich	3.20
Do	Evansvills, Ind	9.80
Do	Flint, Mich	1.80
Do	Lansing, Mich	4.00
Do	Pontiac, Mich	2.30
Do		
Tractors	Cleveland, Ohio	.78
Do	East Chicago, Ind	3.12
Do	Detroit, Mich	1.23
Do	Peoria, Ill	2.48
Do	South Milwaukee, Wis	3.12
Refrigerators, electric	Moraine City, Ohio	.88
Excavating and grading equipment	Peoria, Ill	3.04
Machinery	Milwaukee, Wis	2.55
Other appliances	Muskegon, Mich	.78
Chemicals:		
Soap and soap powders	Cincinnati, Ohio	.52
Do	Jeffersonville, Ind	1.03
Do	Louisville, Ky	1.03
Paints and varnishes, less than carload	Cincinnati, Ohio	1.00
Do	Wooster, Ohio	.88
Do	St. Louis, Mo	3.04
Do	Pittsburgh, Pa	2.52
Unclassified:		
Ammunition, less than carload	St. Louis, Mo	3.40
Matches	Akron, Ohio	.88
Do	Chicago, Ill	1.52
Do	Portsmouth, Ohio	.94
Roofing	St. Louis, Mo	2.28
DOWN-BOUND		
Textiles:	*Destined to*	
Cotton bagging	Kansas City, Mo	3.44
Do	Minneapolis, Minn	3.92
Clayed cotton bagging	St. Louis, Mo	2.36
Do	Dubuque, Iowa	2.84
Ores, metals, and manufactures of:		
Iron and steel products:		
Steel, hoop	Paducah, Ky	1.32
Do	St. Louis, Mo	2.12
Other manufactured	Pekin, Ill	2.32
Do	Chicago, Ill	2.48
Machinery and vehicles: Agricultural implements and parts.	Springfield, Mo	1.40

Source: Tennessee Valley Authority.

TABLE IX.—*Water power plants of 100 horsepower or more in the Southeastern States, Jan. 1, 1941*

Company name	Plant name	Stream	Installed capacity (horsepower)
ALABAMA			
Alabama Power Co	Jordan Dam	Coosa	164,000
Do	Lay Dam	do	114,900
Do	Martin Dam	Tallapoosa	144,000
Do	Mitchell Dam	Coosa	79,500
Do	Upper Tallasee	Tallapoosa	50,000
Do	Thurlow Dam	do	85,600
Alabama Water Service Co	Elba	Pea	2,900
Do	Gantt	Conecuh	3,450
Do	Point A. Hydro	do	4,800
Tennessee Valley Authority	Wheeler Dam	Tennessee	90,000
Do	Wilson Dam	do	305,118
Do	Guntersville Dam	do	97,700
Total			1,141,968
FLORIDA			
Florida Power Corporation	Dunnellon	Withlacoochee	7,700
Do	Jackson Bluff	Ochlocknee	13,000
Do	Moss Bluff	Ocklawaha	1,000
Florida Public Utilities	Mariana	Blur Springs Creek.	200
Total			21,900
GEORGIA			
Athens Manufacturing Co		Middle Oconee	660
Bibb Manufacturing Co	Porterdale	Yellow	3,300
Do	Columbus	Chattahoochee	1,160
Callaway Mills	Milstead	Yellow	1,000
City Mills Co	City Mills	Chattahoochee	1,024
Crisp County Hydroelectric Co	Flint River	Flint	14,900
Eagle & Phoenix Mills	Eagle and Phoenix.	Chattahoochee	6,150
Elberton Municipal Electric Plant.		Beaverdam Creek	357
Georgia Power & Light Co	Spring Creek	Spring Creek	1,220
Georgia Power Co	August Canal	Savannah	1,900
Do	Barnett Shoals	Oconee	3,920
Do	Bartletts Ferry	Chattahoochee	78,000
Do	Burton	Tallulah	15,000
Do	City Mills Station	Chattahoochee	450
Do	Credille	Pataula Creek	3,000
Do	Flint River	Flint	8,250
Do	Goat Rock	Chattahoochee	25,600
Do	High Falls	Towaliga	4,200
Do	Langdale	Chattahoochee	5,762
Do	Lloyds Shoals	Ocmulgee	33,000
Do	Mitchell	Oconee	700
Do	Morgan Falls	Chattahoochee	23,310
Do	Nacoochee	Tallulah	8,400
Do	North Highlands No. 1.	Chattahoochee	10,010
Do	Riverview	do	650
Do	Tallassee	Oconee	2,380
Do	Tallulah	Tallulah	111,600
Do	Terrora	do	30,400
Do	Tugalo	Tugalo	88,000
Do	Whitewater	Whitewater Creek	540
Do	Yonah	Tugalo	42,600
Gilmore Bros		Little Ogeechee	110
Habersham Mills		Sogue	1,750
Juliette Milling Co		Ocmulgee	900
Rosevell Mills, Inc		Vickery Creek	650
Simpson, E. P., & Co		Toccoa Creek	250
South Carolina Power Co	Stevens Creek	Savannah	28,600
Tennessee Valley Authority	Blue Ridge	Toccoa	30,000
Thompson-Weinman & Co., Inc.	Etowah Mills	Etowah	800
Trion Co		Chattooga	523
Total			591,026
MISSISSIPPI			
None			
NORTH CAROLINA			
Asheville, City of	Recreation Park	Swannanoa	290
Buffalo Power Co	Lenoir	Buffalo Creek	210
Carolina Aluminum Co	Cheoah	Little Tennessee	96,000
Do	Falls	Yadkin	28,980
Do	High Rock	do	44,100
Do	Narrows	do	108,000
Do	Santeetlah	Cheoah	66,000
Carolina Mountain Power Co	Lake Lure	Rocky Broad	5,250
Carolina Power & Light Co	Blewett	Pee Dee	33,390
Do	Buckhorn	Cape Fear	3,500
Do	Carbonton	Deep	1,710
Do	Eury	Little	800
Do	Lockville	Deep	1,220
Do	Lower plant	Little	600
Do	Marshall	French Broad	4,000
Do	Tillery	Yadkin	83,200
Do	Waterville	Pigeon	147,000
Do	Weaver	French Broad	3,350
Cascade Power Co	Brevard	Little	1,000
Cleveland Mill & Power Co		First Board	500
Cliffside Mills, Inc		Second Broad	1,720
Columbia Manufacturing Co		Deep	480
Commonwealth Hosiery Mills	Randleman	do	250
Duke Power Co	Bridgewater	Catawba	35,700
Do	Carters Falls	Elkin	200
Do	Chatham	Elkin Creek	100
Do	Gunpowder No. 1	Gunpowder Creek	500
Do	Gunpowder No. 2	do	125
Do	Idols	Yadkin	1,800
Do	Little River	Little River	750
Do	Lookout	Catawba	33,840
Do	Ararat No. 1	Ararat	450
Do	Ararat No. 2	do	600
Do	Mountain Island	Catawba	82,400
Do	Oxford	do	56,000
Do	Rhodhiss	do	42,000
Do	Spencer Mountain.	South Fork	1,000
Do	Taylorsville	Lower Little	240
Do	Turner	Green	8,400
Nantahala Power Co	Greenville	Tuckasegee, West Fork.	33,500
Duke Power Co	Tuxedo	Green	8,000
Do	Walnut Cove	Dan	575
Do	Pilot Mountain	Pee Dee	656
Do	Old Fort	Catawba	300
Dillsboro & Sylva Electric Light Co.	Dillsboro	Tuckaseegee	500
Durham, City of	Lake Michie	Flat	2,800
East Tennessee Light & Power Co.	Elk Park	Elk	125
Enterprise Manufacturing Co		Deep	300
Erwin Cotton Mills Co	Cooleemee	South	1,651
Flack, J. M	Chimney Rock	Broad	110

TABLE IX.—*Water power plants of 100 horsepower or more in the Southeastern States, Jan. 1, 1941*—Continued

Company name	Plant name	Stream	Installed capacity (horsepower)
NORTH CAROLINA—continued			
Glencoe Mills	Latonia Power Plant.	Haw	362
Do		do	225
Gordon Mills, Inc		Roaring	100
The Henrietta Mills		Second Broad	1,330
Do	Caroleen Mill	do	550
Henry River Mills Co., Inc		Henry	500
High Falls Manufacturing Co	High Falls Mill	Deep	240
Highlands, Town of	Highlands	Cullasaja Creek	185
Holt-Grant Haw Manufacturing Co.	Altamahaw Mill	Haw	200
Huffines, W. L	Huffines Mill	Reedy Fork	120
Jackson Mills	No. 3	South Fork	2,200
Juilliard, A. D. & Co., Inc	Brookford Mill	Henry	580
Laura Cotton Mills		Flat	150
Ledbetter Mfg. Co		Hitchcock	500
Leward Cotton Mills	Worthville	Deep	250
Liledown Mill		Lower Little	275
Lily Mills Co		First Broad	800
Long Shoals Cotton Mill		South Fork of Catawaba.	760
Nantahala Power Co	Andrews	Hiawassee	1,800
Do	Franklin	Little Tennessee	1,040
New River Light & Power Co	Middle Fork	Middle Fork	250
North Wilkesboro, Town of	North Wilkesboro	Reddies	240
Northwest Carolina Utilities, Inc.	Blowing Rock	Watauga	260
Do	Burnsville	Cane	700
Do	Marshall	French Broad	300
Do	Sharp Falls	North Fork of New.	300
Oakdale Cotton Mills		Deep	425
O'Dell, J. M., Manufacturing Co.	Bynum Mills	Haw	450
Pee Dee Manufacturing Co	Mill No. 1	Hitchcock Creek	400
Randolph Mills, Inc	Franklinville No. 2.	Deep	200
Do	Franklinville No. 2.	do	180
Ranlo Manufacturing Co	Harden	South Fork	520
Rhyne, D. E., Laboratory Mill	Rhyne Mill	do	225
Rockfish Mills, Inc	Mill No. 1	Little Rockfish Creek.	500
Do	Mill No. 2	Big Rockfish Creek.	600
Rocky Mount Mills		Tar	2,000
Rocky Mount Power & Light Co.	Sanford	Rocky	240
Sapona Cotton Mills	Sapona Mill No. 1	Deep	150
Sherrill-Barnett Mills	Sherrill Yarn Mill-Barnett Hosiery Mill.	Little	150
Smoky Mountain Power Co	Municipal Plant (Bryson City).	Oconalufty	1,360
Southern States Power Co	Murphy	Notla	500
Spray Cotton Mills		Smith	575
Do		do	625
Steeles Mills		Hitchcock Creek	500
Tennessee Valley Authority	Hiwassee Dam	Hiwassee	77,200
Tuft's Edgar, Memorial Association.	Banners Elk	Elk Creek	300
Virginia Electric & Power Co	Roanoke Rapids	Roanoke	8,300
Virginia Mills, Inc	Upper	Haw	650
Do	Lower	do	600
Washington Mills, Inc	Mayo	Mayo	800
Do	Avalon	do	1,000
Webb Mill & Power Co		Tar	210
Wilson, City of	Municipal Plant	Contentnea	450
Total			1,023,989
SOUTH CAROLINA			
Aiken Stores	Bath	Horse Creek	190
Do	Langley Cotton Mill.	do	250
Belton Light & Power Co	Holliday's Bridge	Saluda	5,900
Bristol Supply Co	Bath		190
Carolina Fiber Co	Groundwood Pulp Department.	Black Creek	520
Clifton Manufacturing Co	Mill No. 1	Pacolet	1,000
Do	Mill No. 2	do	900
Do	Mill No. 3	do	1,200
Columbia, City of	Water works (municipal).	Broad (canal)	600
Conestee Mills	Conestee	Reedy	600
Converse, D. E., Co., The	Glendale	Pacolet	700
Courtnay Manufacturing Co., The.		Little	1,200
Duke Power Co	Boyds Mill	Reedy	2,000
Do	Catawba	Catawba	86,000
Do	Cedar Creek	do	51,300
Do	Dearborn	do	52,500
Do	Fishing Creek	do	64,125
Do	Gaston Shoals	Broad	15,280
Do	Great Falls	Catawba	41,600

TABLE IX.—*Water power plants of 100 horsepower or more in the Southeastern States, Jan. 1, 1941*—Continued

Company name	Plant name	Stream	Installed capacity (horsepower)
SOUTH CAROLINA—continued			
Duke Power Co. (Saluda)	Greenville	Saluda	4,760
Duke Power Co	Gregg Shoals	Savannah	3,000
Do	Ninety-Nine	Broad	31,200
Do	Portman Shoals	Seneca	8,800
Do	Rocky Creek	Catawba	39,440
Do	Tumbling Shoals	Reedy	400
Do	Wateree	Wateree	105,600
Duke Power Co. (Van Patton)	Woodruff	Enoree	11,500
Franklin Process Spinning Mill.		Pacolet	168
Graniteville Co	Graniteville	Horse Creek	960
Do	Vaucluse	do	670
Greenwood County Commissioners.	Buzzards Roost	Saluda River	20,100
Henrietta Mill, The	Cherokee Falls	Broad	1,824
Lenhardt, R. F., Estate	Liberty	Twelve Mile Creek.	290
Lexington Water Power Co	Saluda	Saluda	220,000
Lockhart Power Co	Lockhart	Broad	19,600
Lonsdale Co	Conneross	Conneross Creek	1,600
Manetta Mills	Manetta Mills	Fishing Creek	150
Martel Mills Corporation	Lexington Mill	Twelve Mile Creek.	280
Do	Valley Falls Mill	Lawson's Fork	180
Mitchell, James E. Co	Pelham Mills	Enoree	575
Pacolet Manufacturing Co	Lower Plant	Pacolet	1,400
Do	Upper Plant	do	1,400
Pelzer Mills	Plant No. 1	Saluda	4,826
Do	Plant No. 2	do	2,574
Piedmont Manufacturing Co	Piedmont	do	2,440
Poole, E. A	North	Big Pond Creek	129
Riverdale Mills	Riverdale Mills	Enoree	1,700
Spartanburg Waterworks	Fingerville	South Pacolet	2,500
South Carolina Electric & Gas Co.	Columbia	Broad	11,640
Do	Parr	do	21,600
Startex Mills	South Tiger	South Tiger	2,600
Do	Tucapau	Middle Tiger	1,450
Union-Buffalo Mills Co	Fairmont	do	600
Union Manufacturing & Power Co.	Neal Shoals	Broad	7,000
Victor-Monaghan Co	Apalache	South Tiger	2,000
Virginia Manufacturing Co	Fork Shoals	Reedy	400
Ware Shoals Manufacturing Co		Saluda	6,000
Total			856,311
TENNESSEE			
Aluminum Co. of America	Calderwood	Little Tennessee	112,000
Cookeville, City of	Burgess Falls	Falling Water	2,210
East Tennessee Light & Power Co.	Wilbur	Watauga	5,600
Ketner Bros	Victoria	Big Sequatchie	152
Lawrenceburg, City of	Shoal Creek No. 1	Shoal Creek	800
Do	Shoal Creek No. 2	do	540
Lebelville Mill Co	Lobelville	Buffalo	165
McDonald, J. A. & Sons	Rogersville	Holston	180
Newport Cooperative Milling Association, Inc.	Newport	Pigeon	350
Nichol, W. M	Riverside Mills	All of Creek	221
Rains, S. T. H	Denton Mill	Pigeon	114
Ringgold Milling Co		West Fork	115
Rockford Manufacturing Co		Little	260
Tennessee Eastern Electric Co	Greenville No. 1	Nolichucky	17,200
Tennessee Valley Authority	Chickamauga Dam.	Tennessee	108,500
Do	Columbia	Duck	1,072
Do	Estill Springs	Elk	1,072
Do	Hales Bar	Tennessee	56,455
Do	Harms	Elk	257
Do	McMinnville	Barren Fork	295
Do	Norris	Clinch	132,000
Do	Ocoee No. 1	Ocoee	30,500
Do	Ocoee No. 2	do	25,000
Do	Pickwick Landing	Tennessee	96,000
Do	Rock Island	Caney Fork	34,200
Do	Seierville	Little Pigeon	135
Do	Shelbyville	Duck	580
Do	Sparta	Calfkiller	242
Do	Walter Hill	Stone	257
Townsend Light & Mill Co		Little	100
Total			626,572

SUMMARY

State:	Horsepower	State:	Horsepower
Alabama	1,141,968	South Carolina	856,311
Florida	21,900	Tennessee	626,572
Georgia	591,026		
Mississippi	None	Total	4,295,266
North Carolina	1,057,489		

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